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Rubber Industry's Outlook

An Unusual Combination of Favorable Factors Held to Justify a Very Optimistic View of Business During the Coming Year. Review of Preparations for Better Times

WHILE the American rubber industry in 1927 may not have quite realized its hopes for a record-breaking year of big business with commensurate profits, nevertheless it did an immense volume at fairer prices and under more normal conditions than had obtained for several years immediately preceding. Best of all, it notably strengthened its domestic and foreign trade position in many important respects; and, especially, it took a long step forward in insuring for itself an ample supply of basic raw material, crude rubber, produced solely under American control. The outstanding event of the year in this direction was, of course, the acquisition by the Ford Industrial Company of Brazil, a subsidiary of the Ford Motor Co. of Detroit, of 3,700,000 acres in the Amazon Valley for rubber cultivation on a colossal scale. If, as it is very likely, Henry Ford and his associates, with resources practically unlimited, conduct this enterprise as energetically and efficiently as they have their immense automobile plant, it may before long profoundly affect the world's rubber market. Great strides were made in 1927 by the Firestone company with its big rubber planting project in Liberia, and the outlook for this undertaking is regarded as most promising.

The Goodyear interests, during the past year, added 29,000 acres to their holdings in Sumatra, thus bringing their plantation area there to about 50,000 acres, and which, with the holdings of the United States Rubber Co. and the Continental Rubber Co., in the same island and those of the Manhattan Rubber Co. in Java, brings the area in the Far East being developed by Americans up to some 200,000 acres. Scientific methods were reported in 1927 as having effected surprising increases in acre yield. Hence is it confidently predicted that within but a few years American interests will control sufficient production to preclude the chance of either rubber shortage or adverse price regulation.

Rubber on American Soil

While large scale rubber raising in the Philippine Islands has not yet got under way, it was reported in 1927 that the government of this American dominion had made much progress in inducing farmers to take up rubber cultivation; and, having some assurance that the land laws may soon be amended to allow ownership of areas large enough for economic production, American capitalists in the latter part of the year had under advisement plans for rubber planting on a considerable scale in the archipelago. During the past year also the headway made by the Continental Rubber Co., in developing in the Southwest its unique guayule-growing industry, greatly increased its confidence in the success of its plans for ultimately supplying with a high-grade home-grown commodity about one-fourth of the nation's crude rubber requirements. Of especial interest, too, was the extension in 1927 of the cultural experiments of Thomas A. Edison in Florida, where he has been subjecting over 3,000 rubber and near-rubber plants to the severest tests and with, as he states, very encouraging results.

While crediting overseas planting interests with taking no undue advantage of American crude rubber buyers in 1927 (if the restriction scheme in its fifth year be overlooked), a powerful influence in keeping prices within reasonable bounds was undoubtedly the policy generally pursued by American rubber manufacturers in buying only to meet their more immediate requirements. They had learned from previous years the unwisdom of using too much warehouse room, of tying up too much capital in inventory, and of accumulating large stocks that might deteriorate in condition as well as depreciate in value; and their disregard of gloomy prophesies of scarcity and higher prices designed to spur purchases, proved to be fully justified. The Rubber Exchange of New York, and the American rubber buying organization, in a great measure, kept the cost of crude from soaring. Helpful, too, was the largely-increased output of American reclaimed rubber, the quality of which in 1927 was so markedly improved as to not only warrant its much larger use in compounds in which its merits had already been proved, but also to permit it to replace choice crude in many products in which the raw material had hitherto been deemed indispensable.

A Year of Moderate Profits

Considered from the standpoint of net profits on capital invested, 1927 was a lean year for the rubber industry. Some large concerns even recorded large losses, few added much to their reserves; and even though volume output was in many instances much larger the per unit profit was in numerous cases much less than in previous years. This situation was attributed to excess overhead, keen competition,

and liquidation of dear crude stocks. Late in the year manufacturers were pleased to note a decidedly better tone in trade, largely the result, it is said, of thorough house cleaning, elimination of weak features, closer economy, better production methods, consolidations and prudent refinancing, and improvements in transportation, that made considerable reduction in inventories possible.

Continued hand-to-mouth buying on the part of distributers gave many manufacturers anxiety in the fore part of 1927, but they managed to adjust their operations quite well to the newer trend, and later many came to regard requirement purchasing as even a blessing in disguise, finding compensations in the closer collections and steadier sales than in the irregular and too often urgent bulk orders, often taken on long credits. Later in the year there was a noticeable tendency on the part of well-rated buyers to maintain more complete stocks to satisfy customers seeking immediate service, which meant ordering more units, notably tires, at a time.

Overseas and Southwestern Drift

Increased American interest in 1927 in overseas sales was evidenced in the establishment of more branch factories in Great Britain, the opening of one in Australia, and the revival of one in Japan, thus overcoming tariff barriers and facilitating distribution abroad. Two of the larger Akron rubber manufacturing companies started during the year the building of huge branch factories in Los Angeles, where another Akron company has been operating a large plant for seven years. It is claimed that this southwest drift will become even more pronounced in the near future and as the opportunities for Far West and trans-Pacific trade are more generally realized.

The recent ending of the long suspense experienced by the automobile industry pending the announcement of new car models by the foremost producer of low-priced vehicles, has had an enlivening effect on general business and the chances are that this desirable condition will continue for a protracted period. Automobile building and distribution will doubtless proceed with redoubled energy and to the considerable advantage incidentally of tire manufacturers. Hence, with this and other favorable factors, the rubber industry looks toward 1928 with exceptional confidence. That past losses may in a large measure be retrieved and substantial profits accumulated may be reasonably expected by well-managed concerns during the ensuing twelve months. However, a note of caution comes to the industry from business advisers, and that is against "plunging" on tires because of an imminent quickening in motor car production; and manufacturers are counseled to maintain as far as possible well diversified lines so that when the "motor mania" runs its course there will be no repetition of the distressing conditions of 1922-1924, largely brought on by excessive specializing, too-expanded credits, and intense competition.

Cutting Tire Selling Cost

Mass Distribution Irks Many Dealers, But Held Helpful to Industry. Manufacturers Noting Spreading Trend, Plan Marketing Economies

MANY tire manufacturers and distributers note with anxiety the increasing sales of casings and tubes by mail order houses, department and chain stores, and, finding greater difficulty in marketing, they wonder how far this trend is likely to affect them and whether this newer mode of tire distribution will ultimately benefit or injure the industry as a whole. Naturally no complaint is made by consumers, who are undoubtedly getting the best values in the history of tire making; and economists claim that the principles involved in the change under way are fundamentally sound, large purchases at lower prices making for cheaper and less risky selling. Ultimately all this, they claim, will inure to the advantage of the entire industry.

The inducement tendered by a large mail order house, for instance for a large price concession is often so advantageous to a tire maker that the latter in justice to himself or his concern cannot resist the offer. It may mean from 30 to 40 per cent of a saving on ordinary distribution, and the big buyer naturally expects to share in a good part of such economy. Under the old system, in order to accommodate the small distributer, a manufacturer would have to maintain a stock of perhaps 60 to 70 sizes either at his plant or at a branch warehouse; he would have to sell on long terms, often paying interest on money to carry the dealer accounts, never too promptly paid and often involving collection expense; orders would frequently be given for but a few tires at a time, meaning as much billing and shipping trouble as for a huge order; and the expenses and commissions of traveling salesmen often mounted high.

On the other hand, a great mail order house would not concern itself with a needlessly large variety of sizes, it would buy in large volume, usually carload lots, take shipments as they come through production, saving warehouse charges; and it would pay cash, saving numerous credit risks, collection expense, and salesmen's commissions.

Small Dealers' Opportunity

Assuming that it costs mail order house and department stores at least 25 per cent of sale prices to do business and allowing a mark-up of 33⅓ per cent, it is claimed that an efficient tire dealer who will keep his overhead at a minimum and increase his volume so that he can command large discounts may put himself in a position to compete fairly well with such large dealers, for he can offer terms, repairs, immediate service, and free delivery which the larger ones may not furnish. Moreover, he has the advantage of handling most of the celebrated makes that do not distribute through the newer channels, and even the reputation of handling no second line tires may bring him certain valued business. The wideawake dealer may measurably adapt himeslf to the conditions brought about by the mail order concerns. He may cease to scatter his ammunition now expended in selling too large a variety of styles, may effect minor economies, may aim to make larger purchases, and even if he makes a smaller profit on each sale and a smaller gross sale percentage, yet may net a larger profit on his capital investment.

The idea that the American tire manufacturers are competing directly with one another is not quite true, for there are many avenues of distribution. It is an odd fact, too, that many small companies have built up substantial clienteles and cater so well to their requirements that they do not fear any loss in advantage, for in many cases the big rivals cannot supply readily the special needs of the customers of the smaller companies. Unable to compete with large volume manufacturers for taxi cab, truck, and bus tire business, many small companies are successfully making

large sizes which many big companies do not care to make. Some small manufacturers do an excellent business through wholesale hardware concerns which supply numerous general stores in rural communities, and may long remain untroubled.

Supplying Original Equipment

The small tire maker can scarcely hope for much original equipment business, orders for which must go to a few of the larger companies that need to round out volume for which they are specially equipped and to keep up an even flow of production the year round. Nor could they afford to make the price concessions given car manufacturers and which are often charged to advertising on the theory that the car owner will, if pleased, make replacements of the same kind and influence others to buy the same make of tires. With their big buying, mail order houses are now getting in the same class as the car makers and can demand the same volume discounts on tires.

In another type of tire distribution an effort is made with success to interest the strictly price buyer who operates a small used car. Thus there are concerns making only 30 by 3½ and 29 by 4.40 sizes solely, using a low grade fabric and much fair grade reclaim, and passing on economies in materials and mass production so that consumers may get tires as low as $3.95. Of course, they are not guaranteed and dealers must pay cash for carload lots f.o.b.

Mounting Cost of Distribution

Some industrial students regard distribution as one of the most acute problems with which this country has to contend. A half century ago, they point out, the balance between production and consumption was nearly perfect; but, with mechanical aids multiplying output enormously, production has since so outrun the ability of even a people living on the highest scale to absorb the output that the balance has been much disturbed, and an uneconomic condition with obvious waste has developed that occasions serious concern.

President James H. Perkins of the Farmers' Loan & Trust Co., New York, having made a survey of the question of distribution, quotes a statement to the effect that during the fifty years between 1870 and 1920 the percentage of population engaged in production as compared with distribution decreased from 88 to 70 per cent, while the percentage of those active in distribution increased from 12 to 30. Consequently, he says, when we buy anything today we are paying proportionally much more for distribution and much less for production than we did fifty years ago; and the report of the Joint Commission of Agricultural Inquiry is also cited to show that it now costs more to distribute and serve than it costs to produce. An especially interesting feature of the survey is a symposium of views of noted leaders of the rubber industry.

Mr. Seger Takes a Hopeful View

Analyzing the lop-sided situation, President Charles B. Seger of the United States Rubber Co. believes that the extreme hand-to-mouth buying in the past few years has been no small factor in increasing distributive cost. The handling of a vast number of small orders involves greatly increased expense; and while the tire industry particularly is not expecting a resumption of the former practice of heavy forward buying to anticipate consumer demands, it is probable that the pendulum will before very long swing back to a point where a good average in dealer buying habits will be developed, with consequent greater stabilization in prices, styles, etc., and where the manufacturer will, without sacrificing the benefits of mass production, be able to adjust his schedules to meet the new conditions. Mr. Seger is convinced that the opportunity for retrenchment undoubtedly lies more in the direction of distribution than of production.

Mr. Woolner Suggests Concentration

President Samuel Woolner, Jr., of the Kelly-Springfield Tire Co. would deal with the new issue by to a degree concentrating sales and service. He says that as the question of service plays a large rôle in the distribution of tires a manufacturer should arrange for distribution facilities in sections of the country where the demand for his products and service is large so as to reduce distributive cost to the utmost; and he should leave the outlying districts and sparsely settled communities to the mail order houses and others. Consumers, he says, are more insistent than ever on service, and this is something that the mail order houses cannot hope to supply. He instances a case where a buyer sought a 30 by 3½ tube but balked at paying $2 for it as he could get it from a mail order house for $1.35. When he was shown that he would have to pay practically the full difference for postage, money order, insurance, and parcel post, besides waiting ten days for delivery, he realized that the far away dealing was not so attractive after all.

Mr. Work Urged Distribution Reform

The late president of The B. F. Goodrich Co., Bertram G. Work, noted that while great economies had been made in production there was still much need of reducing distributive cost. Mail order distribution seemed logical to him, starting as it did with careful analysis of well-defined market levels and finally consolidating thousands of merchandising items into a single distributing outlet with a well-manned single point of control. Mail order houses and chain stores, he was sure, would develop further, because they study and satisfy an economic need; they give convenience of purchase and they tap markets having the greatest potential. If mass production has proved its value, may not mass purchasing and distribution also work to the common good? There was no doubt in his opinion that the wide margin between mill door cost and ultimate sale price can be narrowed, and a movement to effect this through more economical distribution is now under way in the rubber industry; although it is not certain that it alone will increase consumption, as shown in the case of tires, which, regardless of cost, can run only certain distances.

HUBER'S RESEARCH LABORATORY

J. M. Huber & Co. recently removed their offices to 460 West 34th street, New York, N. Y. At that location the company has installed a research and testing laboratory fully equipped with compounding machinery and facilities for chemical and physical testing. Color matching can also be handled under actual factory conditions. A second laboratory is maintained at Swartz, Louisiana, by the Huber company, devoted exclusively to research on problems of carbon black manufacture. Furthermore each factory is equipped with a routine control laboratory to safeguard the uniformity of its output.

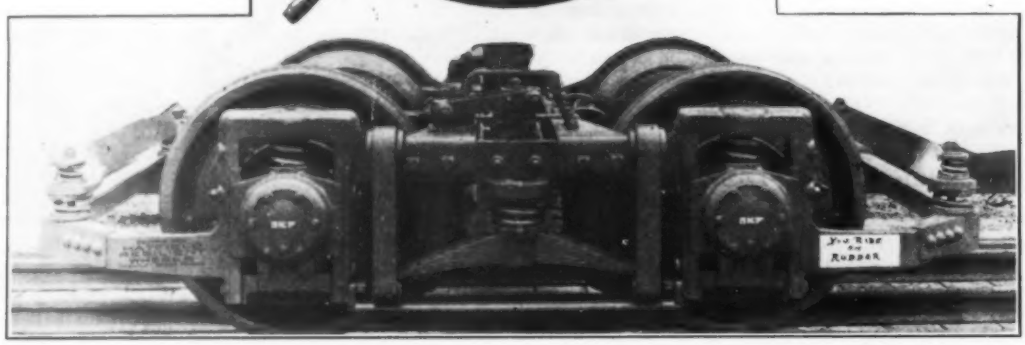
The research laboratory of the Huber company is engaged in an extensive research program under the direction of M. P. Parker, formerly chief chemist of the New York Belting & Packing Division of the United States Rubber Co.

BALATA HORSESHOE TREADS

A material for horseshoe treads is composed of one part of deresined balata melted with three parts of carborundum or other gritty substances. It is molded into sticks, hard and tough when cold, but plastic enough when warmed to allow of being hammered into the fullers of horseshoes.—J. Healy. British patent No. 261,452, April 24, 1926.

Rubber-Tired Cars *for* Street Railways

Single Tube Pneumatic Tire Used at Hub of the Rubber Resilient Wheel



Pneumatic Street Car Wheels Applied to a Trolley Truck

Steel Flanged Wheels with Pneumatic Tubes Around Hubs to Diminish Din, Add Comfort, and Reduce Upkeep

RELIEF from the grinding, squeaking, and pounding of steel wheels on street car rails is promised the millions of city folk and suburbanites who are carried daily on the 80,000 trolley vehicles used in the United States, not to mention the comfort that may be afforded the millions who dwell or do business within earshot of the "trams," through the replacement of the familiar solid metal wheel with a unique type of rubber resilient wheel.

Millions of dollars are being contributed by federal and state governments for the construction of highways, and soon they will be compelled to pass stringent laws to protect them. For this purpose a tax will doubtless be imposed in proportion to the destructive effect of a motor vehicle. Those equipped with resilient wheels should enjoy an A-1 rating, even on heavy trucks or interurban buses, as they will not cause the hammer blow or pounding of solid tires nor the harmful suction of pneumatics.

While car patrons are assured of much more comfort in transportation, operating companies are advised that with such equipment they can save power and reduce operating costs through less wear on tracks, switches, crossings, and car bodies, as well as through minimizing blows between rolling stock and tracks and easing starting and stopping shocks. It is claimed that in doing for the street car what has been done for the automobile, the problem of providing mass transportation on rubber has been efficiently solved.

The wheel is the invention of Schuyler C. Hatfield and was exhibited at the recent American Electric Railway Association Exposition in Cleveland. In its original design, which is intended for motor cars generally, the wheel consists of a comparatively narrow solid tread vulcanized to a steel rim, in either artillery, disk, or wire type, and having between the spokes, disk, or wire support and the hub a small stout single-tube pneumatic tire molded from two sections, and bolted to the hub with a sideplate. This unique feature of the inflatable tire on the hub instead of on the outer rim also characterizes the new street car wheel, of which eight would be required for each car, or 640,000 for present equipment.

In recent tests by a well-known consulting engineer, it is stated that steel I-beams were bent and twisted, bolts were sheared, and steel castings broken on a tire without damaging the latter; and it was forced to carry a static load of 75 tons with but 49 pounds air pressure. In a street car operation, it is stated, the resilient wheel, without its pneumatic section being inflated, carried 75 tons and ran 214 miles without difficulty or impairment. Associated with the makers in the development of the wheel are the S. K. F. Industries, Inc., supplying roller bearings, the United States Rubber Co. which made the pneumatic tubes, and the J. G. Brill Co., car builders; and the service tests are being made by the United Railways & Electric Co. of Baltimore, Maryland.

The plant of the Hatfield Resilient Wheel Co. is at 336-342 Guilford avenue, Baltimore, and its officers are: President, Schuyler C. Hatfield; vice presidents, N. D. Ballantine and N. F. Harriman; secretary, M. B. Hatfield; treasurer, F. D. Hall.

Rubber Compounding Practice[1]

Thermatomic Carbon and Hard Clays as Auxiliary Reinforcing Pigments
Their Importance as Aids to Processing and Economy

WEBSTER NORRIS

THE preceding article dealt with carbon black and its outstanding effect in increasing the resilient energy of rubber producing thereby correspondingly high resistance to abrasive wear. The present article treats of a number of materials which compared to carbon black, may be considered as secondary reinforcing rubber pigments, and therefore not competitive with carbon black. This group comprises thermatomic carbon, zinc oxide, several varieties of clay, light magnesium carbonate and glue. Each has individual and characteristic value in rubber mixing apart from that shared in common. Therefore they are not ordinarily interchangeable although to a certain extent they may be so treated. They serve the rubber compounder in situations when carbon black is not available by reason of its color, and for securing convenience of processing, effect upon the cure, etc.

Thermatomic Carbon

Natural gas is the source from which is obtained both carbon black and thermatomic carbon. The process of manufacture of each is, however, distinctly different. Thermatomic carbon is obtained by decomposing natural gas by heat into carbon and hydrogen out of contact with the air. It is not a substitute for channel carbon black but acts in a rubber mix very much like zinc oxide when one is substituted for the other on a volume basis. In other words, when one pound of thermatomic carbon is used to displace three pounds of zinc oxide the same reinforcing effect is obtained. Thermatomic carbon should never be compared with carbon black because it does not stiffen a rubber mix greatly, even in large amounts. Instead it makes a soft mix having high tensile strength and elongation when cured. It behaves as a softener in high rubber stocks and improves both mixing and running qualities. In such stocks thermatomic carbon is used to replace crude rubber pound for pound with improvement of aging quality.

The specific gravity of thermatomic carbon is 175, the same as that of carbon black. It bulks less because it contains less air and therefore does not fly badly in the mill room. Its color is dark gray instead of jet black. It is used advantageously in compounding for all dark colored goods of every quality such as tires, inner tubes, airbags, high test belt frictions, steam and air hose, footwear, hard rubber, etc.

In a pure gum stock the addition of thermatomic carbon up to about 30 per cent improves tensile strength with but small reduction of elongation and only moderate

[1] Continued from INDIA RUBBER WORLD, December 1, 1927, pp. 53-55.

Typical Compounds Containing Thermatomic Carbon, Dixie Clay, Aluminum Flake and Catalpo

TIRE FRICTION

Smoked sheets	75.00
Tire reclaim	25.00
M. R.	5.00
Zinc oxide	5.00
Thermatomic carbon	15.00
Stearic acid	3.00
Pine tar oil	2.00
Sulphur	2.75
Age-Rite	0.50
Captax	0.50
	133.75

Press cure 60 minutes at 258 degrees F.

TIRE CUSHION

Smoked sheets	100.0
M. R.	10.0
Zinc oxide	5.0
Thermatomic carbon	20.00
Stearic acid	2.0
Pine tar oil	2.0
Sulphur	3.0
Captax	0.6
	142.6

Press cure 60 minutes at 258 degrees F.

MOLDED INNER TUBE

Smoked sheets	100.00
Zinc oxide	5.00
Thermatomic carbon	25.00
M. R.	5.00
Stearic acid	2.00
Age-Rite	1.00
Sulphur	2.75
Captax	0.50
Vandex	0.50
	141.75

Range of press cures, 10-25 minutes at 287 degrees F., or 5-15 minutes at 307 degrees F.

TIRE BEAD

Smoked sheets	10.0
Tire reclaim	30.0
M. R.	7.0
Dixie clay	20.0
Sussex whiting	15.0
Zinc oxide	2.0
Lime	2.0
Litharge	2.0
Stearic acid	2.0
Captax	0.2
Sulphur	10.0
	100.2

Cure 60 minutes at 258 degrees F.

CHEAP BLACK HEEL

Rubber	8.00
Tire reclaim	60.00
M. R.	5.00
Aluminum flake	20.00
Zinc oxide	3.00
Carbon black	5.00
Sulphur	1.50
Captax	0.25
Stearic acid	1.00
Degras	1.75
	105.75

Cure 12 minutes at 307 degrees F.

TIRE TREAD

Smoked sheets	50.00
Tire reclaim	10.00
Zinc oxide	3.50
Carbon black	16.50
Catalpo	13.00
M. R.	2.00
D. P. G.	0.50
Sulphur	2.00
Palm oil	1.50
Stearic acid	1.00
	100.00

Cure 75 minutes at 290 degrees F.

TIRE FRICTION

Smoked sheets	20.00
Roll brown	10.00
Guayule	5.00
Tire reclaim	35.00
Zinc oxide	3.00
Catalpo	23.00
M. R.	2.00
D. P. G.	0.25
Sulphur	1.85
	100.10

Cure 75 minutes at 290 degrees F.

RED INNER TUBE

Smoked sheets	40.00
Guayule	10.00
Red inner tube reclaim	10.00
Zinc oxide	8.00
Catalpo	23.75
Sulphur	1.50
D. P. G.	0.75
Palm oil	0.25
Anti-oxidant	2.00
	96.25

Cure 30 minutes at 307 degrees F.

stiffening. Above that proportion there is a gradual decline in the physical properties although the easy working effect continues.

The softening action of thermatomic is valuable in frictions where free penetration of fabric is essential. It does not increase tackiness. That can be supplied by additions of pine tar or pine tar oil.

It is desirable to include a reasonable amount of thermatomic carbon in a tire tread or side wall mixing with the necessary carbon black reclaim and zinc oxide. This improves the machining quality of the stock and increases its toughness.

Formulas are given showing its use in stocks for tire friction, tire cushions, and molded inner tubes. These are large representative outlets for the material. Its usefulness in rubber mixings covers many other lines of products such as frictions for belting, hose and other mechanical rubber goods, molded articles, footwear, heels, etc.

Rubber Compounding Clay

Clay for rubber compounding was introduced early in 1920 to supply the need for a cheap reinforcing material. It has proved very suitable for this purpose particularly where abrasive wear is an important requirement. The reason is found in the degree of fineness, uniformity of quality and freedom from foreign material and in the pigment characteristics of carefully prepared hard clay. These and its property of holding tenaciously to rubber by reason of its specific adsorptive power have brought clay into active competition with both carbon black and zinc oxide, particularly in compounding tire tread stocks where it is used to displace equal volumes of either carbon black or zinc oxide without decreasing abrasive wear value.

The following remarks apply in general only to clays like Dixie brand of particle size of .005 mm. and others of equally hard quality. Such porcelain clays are capable of notably promoting the tensile properties of rubber.

The values given by clay are, usually, somewhat less than those given by zinc oxide. Slow wearing stocks require toughness and stiffness at low elongations, these qualities hard clay gives in marked degree and at much lower cost than by any other reinforcing ingredient. Clay also holds a strong position by its saving in cost over many other basic ingredients. The volume cost of clay is but one twentieth that of rubber or zinc oxide and only one eighth that of carbon black.

Clay is not compatible with all organic accelerators. For example thiocarbonilide by itself is worthless, and ethylidene aniline is not at its best with large quantities of clay, whereas hexamethylene tetramine, super sulphur No. 2, diphenyl-guanidine and others give good results where clay is present.

In any stock in which clay and carbon black is used suitable relative proportions of each should be maintained. Clay is not an absolute substitute for carbon black therefore sufficient of the latter should always be present.

A typical high grade tire tread mixing of several years ago contained rubber 55, carbon black 12, zinc oxide 30. In such a mixing two thirds of the zinc oxide can be replaced without detriment to the stock by an equal volume of clay and any accompanying change in acceleration desired, making the formula read for example, rubber 55, carbon black 12, zinc oxide 10, clay 9.

Clay slightly retards cure and therefore stands higher sulphur and more overcure than zinc oxide does. A proper balance of sulphur, accelerator, and time of curing will give the results desired in clay stocks.

Space permits reference to but two of many meritorious brands of rubber clays and one colloidal clay preparation, which are described in the following paragraphs:

Special Clays

Aluminum Flake is a hard clay or silicate of alumina containing small percentages of the oxides of iron, calcium and magnesia. It was the first hard clay to be introduced in the rubber industry and offered as an inert substitute for zinc oxide as a reinforcing pigment. The natural deposit is of exceptional quality and requires only to be quarried, dried and ground to pass through a screen of 350 mesh. This treatment yields a fluffy white or grayish pigment free from grit of 245 to 250 gravity. It readily disperses in rubber on the mill and is esteemed for its compounding value. Vulcanization has no effect upon it and it is inert toward rubber colors.

Dixie clay is a hard Georgia clay highly esteemed for its uniform quality and ability to increase the tensile properties and abrasive wear of rubber. It is generally accepted as the standard of comparison and is used wherever tough, cheap stocks are required. Its working qualities are appreciated in electric wire insulation, hard rubber goods, tires, tire beads, heels, mechanical rubber goods and weatherproof fabrics. Among the typical clay compounds two heel stocks are given, one containing Dixie clay and one, aluminum flake. Softer grades of clay are of value in making low priced rubber goods such as tubing, certain mechanicals, etc. Light and dark clay from Virginia and South Carolina are very much favored by the rubber trade for this purpose.

Catalpo is a patented colloidal clay preparation. It consists of washed china clay deflocculated with soda ash solution. The non-colloidal particles are settled out and the suspended material is coagulated with alum, settled, dried and reground. Thus prepared the product is free from grit and has a particle size of 70 millimicrons in diameter. It is an excellent reinforcing material and has been in use in the United States since 1924 in a diversified line of rubber products. The material is absolutely inert and is now used in all grades of inner tubes particularly in heavy duty bus tubes where elimination of heat is of paramount importance. In tread stocks, catalpo displaces all the zinc oxide, excepting the small amount necessary to activate the accelerator, and gives a higher resistance to abrasion than a zinc oxide-carbon black tread.

Catalpo works well with carbon black, reducing the heating and stiffening effect attendant upon high pigmentation with black. It is used in the compounding of tire friction stocks, proving that it is possible to reduce the cost of the friction and at the same time increase its life. This is particularly true in balloon and heavy duty bus tire casings. In solid tires where carbon black is debarred because of its heating qualities catalpo gives superior resistance to abrasion than zinc oxide and a better physical tearing or chipping test.

In rubber covered wire, where tensile strength, resistance to abrasion and dielectric strength are of much importance, catalpo displaces any inert pigment.

Catalpo maintains the quality at a very moderate cost in proofing stocks, gum sheets, footwear stocks, wringer and paper press rolls, hard rubber and other mechanical rubber goods.

Its specific gravity is 2.55. In a basic mixing containing rubber 100, zinc oxide 5, D. P. G. 1, sulphur 3.5, comparison of catalpo with lithopone, zinc oxide, thermatomic black, whiting, barytes and blanc fixe showed for catalpo higher tensile and elongation at break and greater load capacity at 400 per cent elongation.

In the clay group of typical compounds will be found the following formulas: Tread, side-wall, friction and bead stocks for tires, red inner tubes, and heels featuring thermatomic black, aluminum flake, Dixie clay and catalpo.

Instrument for Recording Temperatures in Mills and Calenders

A. O. ASHMAN
and
C. F. HOMEWOOD

Research Division,
New Jersey Zinc Co.,
Palmerton, Pa.

DUE to the present tendency toward the use of rapid accelerators and low temperature vulcanization, it is necessary to give an increasing amount of attention to the temperature at which the stocks are worked prior to vulcanization. To meet these conditions in our own experimental work, the New Jersey Zinc Co., has developed an instrument which is robust enough to withstand normal operating conditions and at the same time is sensitive enough to permit close temperature regulation. A number of these instruments has been in service for some time and seems to fill a definite need in the rubber industry. While our applications have been limited to rubber, other applications are obvious where slow speed rolls are used. For example, inquiries have been received from paper, leather, linoleum and steel manufacturing companies.

General Description

The temperature recorder consists of two parts, a contact thermometer which is placed in contact with the material whose temperature is to be measured, and a recording Wheatstone bridge. This needs no detail description here. Single record curve drawing signal light instruments are recommended. It is, however, possible to connect two or three thermometers to one recorder. In the latter event the signal light feature must be sacrificed. It is also possible to use an indicating Wheatstone bridge where the cost of a recorder is a factor. By means of a suitable switch two or more thermometers may be connected to one indicator.

Contact Thermometer

The contact thermometer consists of a sensitive resistance element, and a suitable means of support, the supporting member being adapted to the particular kind of machine with which it is to be used. The resistance element is of the three lead compensating type. It consists of a flat resistance winding of No. 40 wire wound on a very thin mica form, and having a resistance of 100 ohms at 20 degrees C. The winding is made up of 93.8 per cent nickel and 6.2 per cent manganin, the latter being added to secure the temperature coefficient required to adapt it to the particular Wheatstone bridge used. The proportions of nickel and manganin will vary with wire from different sources.

The resistance element is mounted in a small bakelite box and in intimate contact with the steel shoe which bears against the rubber. Backing this resistance element is a piece of chamois and cork board all of which are compactly arranged in the element box. Holes are left in the back of the box for bringing out the leads. The element box is in turn mounted in the supporting member. It is so arranged by means of springs or counterweights that a small but definite pressure holds the shoe in contact with the rubber. Neglect of this feature will lead to the generation of frictional heat with accompanying errors that cannot be compensated for.

Thus the element box is not fastened rigidly in the support but is free to move slightly. The support is so mounted that the total bearing pressure of the shoe on the roll is supplied by the small spring or counterweight. It has been found by experiment that with the particular design of holder used this pressure should not exceed 12 gr. and should preferably be about 5 gr. This is taken care of by proper design of the springs or counterweights.

These thermometers have been developed for use on calender rolls, plant mixing mills, and laboratory mixing mills. The resistance thermometer, the recorder, and the electrical system is practically identical for each type. The difference between them lies entirely in the design of the supporting member and the method of securing the proper bearing pressure on the roll. A brief description of each of these types follows.

Calender Roll Thermometer

The design of the thermometer for use on calender rolls is shown in Figure *A*. The method of mounting it on the frame of the calender is shown in Figures *B*, *C* and *D*. The feature of this design is the double hinge which allows sufficient movement of the head to prevent breakage by the bank when rolls are reversed. Spring tension maintains the head in its normal position and also permits movement in either direction to clear the bank when necessary. This is shown in the illustrations with the hinge cover removed.

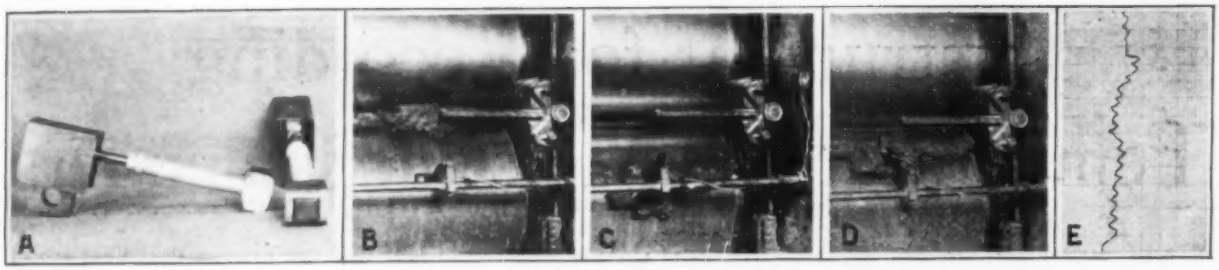
The entire head is adjustable forward or backward with respect to the hinge, which allows several inches leeway in mounting of the cross bar on the frame of the calender. It also provides the adjustment that is necessary to bring the shoe of the holder into proper contact with the rolls. The brass block forming the base of the double hinge is split on the diameter of the large hole and affords a convenient means for fastening the thermometer to the mounting bar. This bar is usually secured to the calender frame by cutting different hand threads on the two ends and screwing them in flanges held in place by machine screws.

Figure *A* also shows the front view of the element box mounted in the head. The box is pivoted at the top and free to swing in or out, except for a small spring tension which holds the front of the box (shoe) against the roll. The spring tension is adjustable, the adjusting screw being seen in the side view of the head. The leads are brought out through the center of the head and under the hinge cover. They are so anchored that no strain can be put on the delicate wires forming the resistance element. The hinge cover as well as the housing around the box were provided to prevent the accumulation of lint and dust, particularly on friction calenders.

Figure *E* is a record of the temperature on a skim coating calender during regular operations.

Plant Mill Roll Thermometer

A thermometer for use on plant mixing or warming mill rolls is shown in Figure F and the method of mounting same is shown in Figure G. Counterweights are relied on to keep the thermometer head bearing on the bottom of the front roll. The construction is such that large irregularities in surface, such as occur on breaking down the crude, cause no difficulties. The element box is mounted on small ball bearings in the end of the head and differs from that in the calender thermometer inasmuch as its contact pressure is supplied by a counterweight within the head itself. In this



Temperature Recording Instrument Applied to Calender Rolls

way the main counterweights holding the head against the roll have no effect whatever on the contact pressure of the shoe against the rubber.

Figure H shows the front roll of a mixing mill, and the location of the thermometer head under it. Figure I shows a mixing mill which is equipped with a thermometer, and the arrangement of a recorder and signal lights. In this case the recorder is mounted on springs to eliminate vibration. This arrangement does not lend itself to use on a mill equipped with an apron.

Figure J is a record taken from a mixing mill. Each cycle represents a different batch. The penciled record represents the batch number together with the date and operator's name. This constitutes a complete and permanent record of this part of the operation and is particularly desirable in experimental mixes.

Laboratory Mill Roll Thermometer

The laboratory mill roll thermometer differs from the other two just described in that the element box is rigidly mounted in the head and has no separate provision for adjustment of the bearing pressure. This arrangement is possible here due to the lightness of the entire moving part. Self-alining ball bearings eliminate friction and by means of the counterweights a very accurate adjustment of bearing pressure can be obtained. A tension spring is used to hold the head against the roll, thus reducing the size of the counterweight and the inertia of the moving system. It operates in the same manner as the plant mixing mill thermometer.

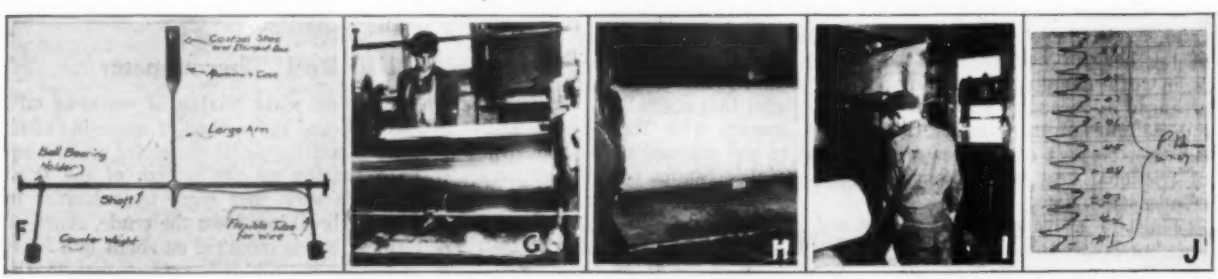
Accuracy

Questions may arise as to the accuracy of this method of measuring temperature. Obviously the resistance element mounted as it is in spite of the care given to insulate it, will lose some of its heat by conduction and by radiation from the sides of the element box. Thus, the sensitive element is bound to be at a lower temperature than that of the rubber which it is supposed to measure. This condition has actually been found to exist. It has been found, for example, that with the rubber temperature at 70 degrees C. the temperature of the sensitive element is only 67 degrees C. and when the rubber is at 120 degrees C. the element is 114 degrees C. To overcome this the coefficient of the winding is so adjusted that it reads higher by these amounts when it is immersed in an oil bath. These corrections vary with the different types of thermometers and also with the room temperature in which the mills are located. They are, however, the best averages that our experience so far has given us and are used for all thermometers at this time. In this way we are able to compensate for the heat losses from the element box.

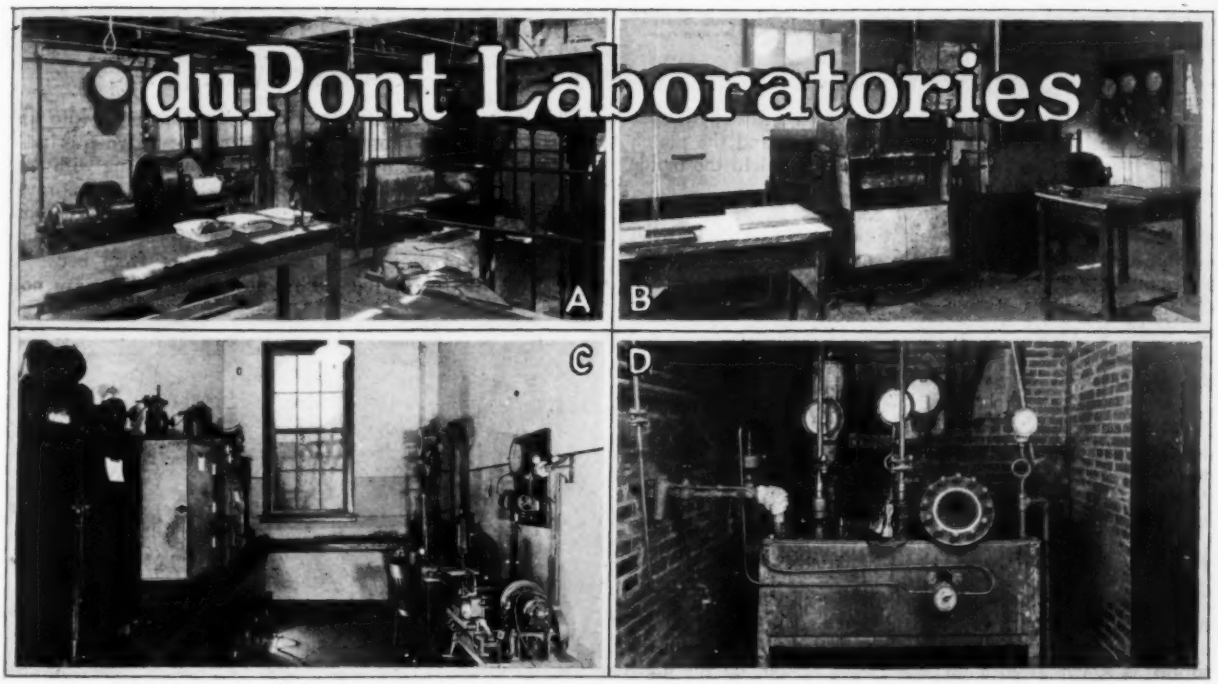
Checking the actual rubber temperature with the reading on the recorder is made by stripping a piece of rubber from the roll and quickly wrapping it around a fine wire thermocouple. The use of a mercury thermometer for this purpose is likely to give low readings due to the cooling effect of the large mass of mercury. This is particularly true when working with thin sheets of rubber. Checks should be made when the recorder shows little or no change in temperature over a period of two or three minutes.

Checks made on calender installations show that an accuracy of ± 2 degrees C. can be expected. On laboratory mills an accuracy of ± 3 or 4 degrees C. can be expected. With the plant type mixing mill the accuracy is apt to be considerably less, particularly during the breaking down period. However, the readings of different batches are comparable as shown in Figure J.

The American Institute of Chemical Engineers held its twelfth semi-annual meeting at St. Louis, Missouri, December 5-10, 1927, where a symposium on lead took place. Among the papers was one by J. R. Sheppard on "The Use of Lead Compounds in Rubber Manufacture," in which the author discussed some of the salient features of the chemistry of rubber and contributed an original view concerning the stress-strain curve of rubber. The paper also touched briefly on various lead compounds used in rubber manufacture devoting special attention to litharge. Considerable data were presented supporting the author's conclusion that economy can be effected in compounding rubber by replacing a unit quantity of milled litharge by a small amount of sublimed litharge.



Temperature Recording Instrument Applied to Mixing Rolls



(A) MIXING AND COMPOUNDING. (B) VULCANIZING MOLDED SAMPLES. (C) PHYSICAL TESTING. (D) BOMB AGING.

Views in the du Pont Rubber Laboratory, Penn Grove, Delaware

A Group of Control, Research and Service Laboratories That Contribute in a Large Degree to Rubber Technology Progress

THE laboratories of E. I. du Pont de Nemours & Co. devoted to dyes, chemicals, rubber colors, accelerators, etc., occupy three special buildings at the company's chemical manufacturing plant located at Penn Grove, Delaware. The rubber department and a large staff of chemists is under the supervision of E. R. Bridgwater. The work of the rubber laboratories is divided about equally between: (1) control of the production of accelerators and rubber colors: (2) research on those materials; and (3), service rendered to chemists and compounders of rubber companies.

Mixing and Compounding

The group picture comprises four views in the rubber laboratory; of these A is one side of the rubber mixing or compounding laboratory in which there is a hydraulic accumulator for circulation of mill temperature control water stored in the tank located next the door. The motor and circulating pump are immediately below the tank. One motor driven mixing mill only is shown but there is a duplicate mill unit.

The water that is circulated through the mills is pumped from a constant temperature tank by a small centrifugal pump and is returned to the tank. The water is kept running through the mills at all times because if one mill were shut off the rate of circulation through the balance of the system would be increased. The only exception to this rule is that the warm water is shut off and cold water used when mixing very soft batches containing high percentages of mineral rubber such as garden hose or low grade matting.

Mixing, Signal and Recording System

The temperature of the rolls is measured by a direct reading recording potentiometer. The thermocouple is under a counter-weighted shoe which rides on the back roll of the mill. Credit is due to the New Jersey Zinc Co. for the design of this piece of equipment. The potentiometer is used only to determine whether the rolls are at the correct temperature for starting to mix a batch. It is connected with red, white and blue signal lights, which are located on the wall directly behind the mill. A blue signal light burns when the temperature of the roll is below 40 degrees C. a white light when it is between 47 and 50 degrees C. and a red light when the temperature is over 50 degrees C. No compound on which physical tests are to be made is mixed unless the white light is burning when the batch is started. If the blue light is burning some scrap rubber is fed through the mill until the white light comes on and if the red light is burning the operator either waits until the white signal flashes, if the temperature is only a little above 50 degrees C. or, if the temperature is considerably above 50 degrees C., turns on the cold water until that temperature is reached and then immediately turns it off and turns the warm water on again. After the batch is started no attention is paid to the signal lights.

The potentiometer shows the temperature rise during the mixing and the temperature curve for any particular batch is always practically the same because the mill is cooled with water at a uniform temperature and under a constant pressure. The requirement that the white light must be burning when the batch is started is waived for all compounds on

which no physical tests are to be made, such as color standardization batches.

Curing Methods

View B in the group picture represents the hydraulic platen presses, encased in asbestos insulation and the platen openings surrounded with asbestos board to shield the molds from air draughts during vulcanization.

All stocks on which physical tests are to be made are allowed to age for a minimum time of 16 hours between mixing and curing. Samples are cut, weighed and trimmed approximately 20 per cent heavier than the cured slab. The slab is never permitted to be more than ¼-inch smaller than the mold in either dimension. In this manner excessive flow, which would result in an irregular grain in the cured slab is avoided.

The usual instruments are employed for controlling the steam temperature but the regulators are set by reference to a thermometer which is in the mold itself rather than the recording thermometer or the mercury thermometers on the platens. The thermometer is inserted so that the bulb is exactly in the center of the mold.

Physical Testing

All physical tests are conducted in a room shown in view C maintained at a temperature of 82 degrees F. ± 2 degrees F. by a forced draft indirect heating system. The fresh air supply is drawn from a point near the ground on the north side of the building. The volume of the room is approximately 2,200 cubic feet and the air is circulated at the rate of 500 cubic feet per minute by a fan. The supply of steam to the heating coil is controlled by a vapor filled bulb which is shown in C on the wall of the room. This is the same type of temperature control as is commonly used for vulcanizers.

A recording wet and dry bulb thermometer indicates the temperature and humidity of the room, and is located adjacent to the temperature control bulb. The abrasion testing machines, as well as tensile machines, are located in the constant temperature room. Samples are died out by means of an arbor press, recommended for obtaining the most accurately cut samples.

Aging Apparatus

At the left in view C are shown three air aging ovens. These differ somewhat in details of construction although all are provided with means for uniform circulation of air, sensitive temperature control and its automatic record.

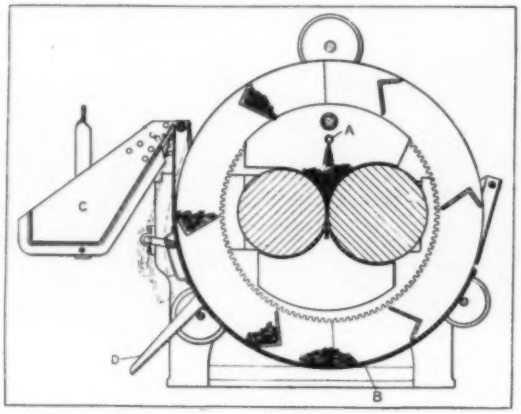
Apparatus for aging in oxygen consists of a group of three bombs of one gallon capacity each housed in an outside brick structure seen in view D. Elaborate precautions have been taken to prevent damage in case of explosion, although so far none has occurred. The bombs stand in water contained in a steam jacketed tank equipped with automatic heat regulation and temperature recording thermometer.

ADVANTAGES OF BROAD TREAD BALLOONS

One of the chief reasons for the growing popularity of the automobile for winter transportation is the increased safety that was originated in the broad tread of balloon tires. Miller tire engineers point out that there is a far greater factor of safety in tires equipped with the modern broad tread that affords greater road contact. Another factor that adds to safety is the tread designs that give the broad contact tire greater grip on snow covered or icy streets. Tests have demonstrated, engineers claim, that the balloon tire with its greater road contact, does not skid as easily as the smaller high pressure tire.

Automatic Rotary Elevator for Rubber Mill

The long established method of feeding material into an ordinary rubber mill by means of a hand shovel when grinding vulcanized scrap or washing it is not in keeping with the dictates of economy and efficiency. Attempts to improve on this method of working include a number of different means such as the use of a flexible conveyer cooperating with the rollers to carry material dropping from between them back for regrinding. This and other devices are not entirely satisfactory especially where materials such as re-



Bucket Elevator Mill Feed

claimed rubber containing much acid or alkali are being treated. A much more promising device is that here illustrated.[1] It consists of a pan for receiving the materials from between the mill rollers and a bucket conveyer for lifting the material in the pan up and dumping it back for regrinding, thus insuring the maximum output of the mill. The machine can be used as a washer as well as a grinder by the installation of a spray pipe, *A*, for directing water into the upper bight of the rolls and providing the bottom of the encircling plan, with a screen through which the water may drain.

The operating mechanism comprises a pair of gear driven circular flanges, one of which surrounds the mill at either end of the rolls and supporting between them a number of angular buckets which scoop up the ground material from the bottom of *B*, elevating and dumping it back between the rolls. On the front of the mill hinged to the top edge of the mill pan is a tilting feed hopper *C*. Stock to be ground is loaded into this and dumped into the mill by raising the hopper by means of an air hoist. By opening a closure located in the wall of the pan below the hinge of the hopper, the ground stock is discharged on a conveyor *D*.

It is apparent that this machine serves as a very effective working unit which dispenses with considerable labor and produces a maximum of thoroughly treated stock.

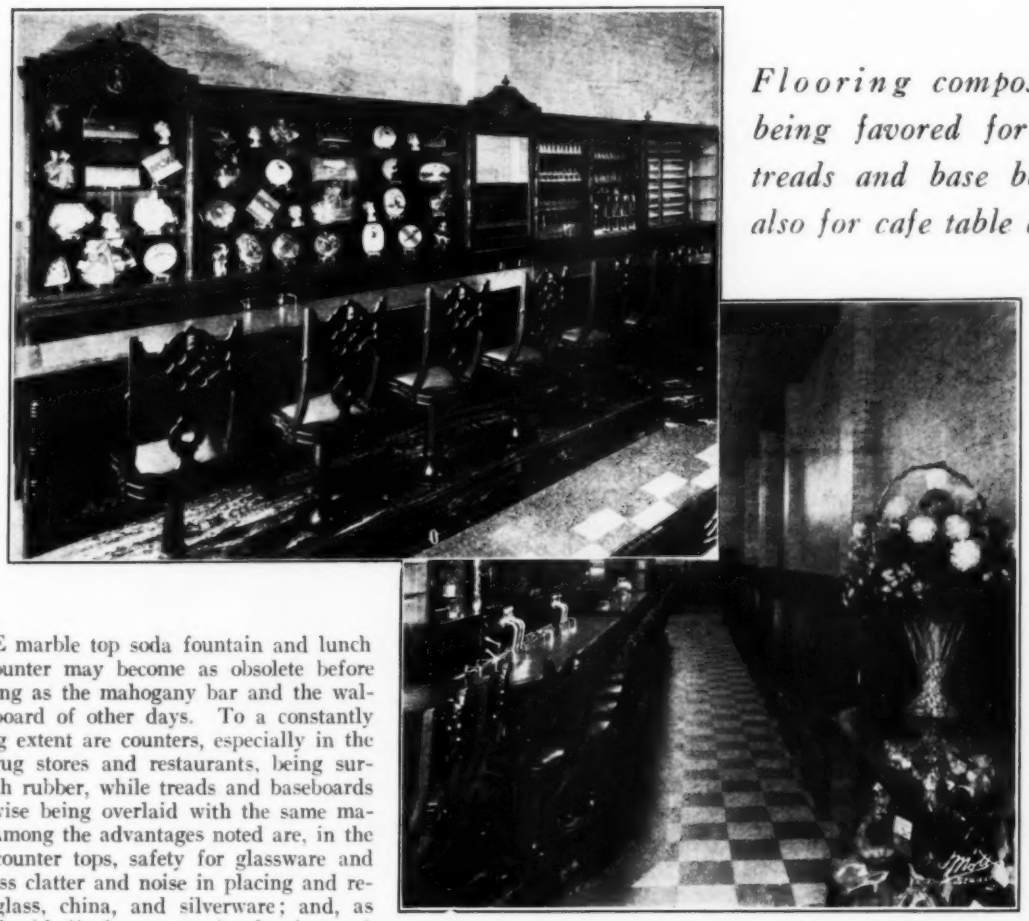
[1] U. S. Patent No. 1,649,774.

WATERPROOFING LEATHER WITH RUBBER

In a process for waterproofing leather, and said to be applicable to paper and other sheeted materials, articles are steeped in a heated solution composed of 30 pounds crude rubber, 30 gallons benzine, 40 gallons naphtha, 50 gallons carbon tetrachloride, and 20 ounces acetone, with or without 20 ounces isoprene. They are then dried and waxed.—N. J. Nunn and K. P. Padshaw, British patent No. 260,652, July 3, 1925.

Rubber *for* Soda Fountains

Flooring compositions being favored for tops, treads and base boards; also for cafe table covers



Views in the "Pig 'n Whistle," Los Angeles, California

THE marble top soda fountain and lunch counter may become as obsolete before long as the mahogany bar and the walnut sideboard of other days. To a constantly increasing extent are counters, especially in the larger drug stores and restaurants, being surfaced with rubber, while treads and baseboards are likewise being overlaid with the same material. Among the advantages noted are, in the case of counter tops, safety for glassware and dishes, less clatter and noise in placing and removing glass, china, and silverware; and, as contrasted with linoleum, ease in cleaning and freedom from clinging odors, due to the fact that the rubber is very smooth and non-porous.

Customers of stores thus equipped remark that a rubber top affords an agreeable cushion for hands or arms, and owners observe that the rubber surface will not wear in spots, a common fault with wood or linoleum tops on which even a tough film of varnish may have been spread. The counter treads, usually set several inches above the floor, and on which are mounted rows of stools, need anti-slip protection, which rubber best affords; while the rubber baseboards for counters or glass showcases require a rubber surface which can not be damaged by the shoe tips of heedless customers. Not the least of the arguments in favor of rubber for all such purposes is that while always looking good it is remarkably durable.

Quiets Service and Saves Brittle Ware

Restaurant keepers have also discovered that tables thus rubber-surfaced are not only more attractive and wear much longer than those with painted, polished, or varnished tops, but that losses through breakage of glasses and chinaware are much less than without such resilient covering. Service, too, is decidedly quieter, especially during the rush hours. Black and white designs, usually patterned after costly marbles, and maroon shades are used, although other colors will doubtless be provided as the demand for rubber surfacing increases. It is stated by fixture builders that at least half of the new stock is now rubber-surfaced.

The greater part of the surfacing material used is standard reinforced rubber flooring made in two layers, each 1/16-inch thick, the top layer being colored and of fine quality and the under one being a heavy black compound, often strengthened with a mixture of long-staple cotton and with or without a cotton fabric backing. After being cut to size, it is fastened to the counter tops, treads, or baseboards, usually made of 5-ply ply-wood, with a moisture-resistant cement, generally a white, shellac base composition, smooth and very pasty, alcohol being used as a thinner. The cement is applied with a plastering trowel and is so laid as to make a thin, uniform coating. When the rubber sheet is laid on the adhesive it is pressed by hand with a heavy steel roller.

A Silver Tarnishing Canard

Salesmen in introducing the material have had some odd experiences. In one western city a restaurant keeper was coaxed to try rubber covering for a few tables with the assurance that it would be taken back within two weeks if it did not give satisfaction. When the salesman called a

fortnight later to ask if the customers were not delighted with the new table tops, the restaurateur angrily told him that the tops would have to be removed forthwith as they were tarnishing his silverware. The rubber man, however, found that a helper had just been discharged for general neglect and that it was he who had blamed the dirty condition of the silverware on the new table tops. The salesman having mentioned the objection to the Akron concern that made the rubber covering, was advised that it was practically impossible for the rubber, especially the contact side, to tarnish silver. Severe tests made before the goods had been marketed had proved that there was not enough free sulphur in the material to produce even the slightest trace of sulphide on silver.

Showcase Builders Seek Assistance

Showcase, fountain, and table makers frankly express a liking for rubber topped products, but they have difficulties for which they seek relief. One is about the cement and the mode of using it. To lessen production cost and to popularize such articles, they want a free flowing adhesive that may be applied with a brush, or with a soft roller attached to a fountain, similar to that of a printing press or like the solution holder on a rubber proofing machine; and they also seek a device for mechanically rolling the sheeted rubber on wood somewhat resembling a calender used for applying a linoleum composition to burlap. They are anxious, too, to get a rubber bead or nosing to take the place of the easily rubbed varnished wood molding now tacked on the edge of a counter or table to protect the rubber margin. Such nosing would be nearly C-shaped in cross-section to abut the covering and clamp in front and under the counter's edge. It might be tubed like tread or other extruded stock and supplied in rolls or in assorted lengths.

Other Fountain Uses for Rubber

Rubber has long been used around soda fountains in other forms, as in corrugated and wired section mats to make standing and walking more comfortable for attendants and to enable them to keep their feet dry. A few complaints were heard that rubber mats sometimes acquired an unpleasant odor, but investigation usually disclosed the fact that the disagreeable smell was due to neglect in cleaning up spilled syrups, etc. Rubber is also used for gaskets on ice cream unit covers, especially where bakelite or like material is used for lids. Rubber hose for flushing many parts of soda fountains is an indispensable accessory.

Another necessary use of rubber hose is in connection with a carbonator machine set between an upright tank of compressed carbon dioxide gas and the coils leading to the fountain faucets, and which, fed with water and gas, automatically keeps the water continually charged, aided with a small rubber-packed electric pump. The latter is started or stopped by a balanced water filled ball, the upper and lower outlets of which are attached to the carbonator mixer with short lengths of rubber tubing, while a 6-foot length of tubing is used to feed the gas from the tank to the carbonator.

Bus Tire Maintenance

Fundamentals to Satisfactory Tire Performance

Too much guess work and carelessness in the handling of tires and tire service in the past is the reason for tire costs and poor service, according to L. G. Fairbank, manager of the Truck and Bus Tire Department of The Firestone Tire & Rubber Co., at the annual meeting of the American Electric Railway Association held on October 3, 1927, at Cleveland, Ohio.

A recent check, Mr. Fairbank declared, on about 150 bus fleets over the country indicates decided progress during the past year in the care of tires, but it also indicates the waste of millions of tire miles annually and the need of a standard tire operating routine backed by the management.

The principal points stressed in the paper are as follows: To secure the proper tire size, find out the weight of the front and rear of the bus by actually weighing it with full load. If the weight exceeds the carrying capacity of the tire the operator cannot secure lowest tire cost.

Check each tire for air pressure every forty-eight hours, if the tire and tube are in good condition and properly inflated with the valve cap securely applied it is reasonable to expect that this tire will not lose air in forty-eight hours. The air compressor must be of ample capacity with plenty of air lines conveniently located. A system of checking air pressure regularly should be established to prevent employes from marking card "Air O.K." unless pressure is actually checked with an air gage. If the valve on the inside of dual tires cannot be easily reached with an air chuck, the service man is apt to let the tire go neglected.

A sufficient number of spares to maintain service is essential, perhaps one spare wheel for every twelve running wheels.

Equipment and regular routine for testing brakes and wheel alinement will save tires.

A tire service room should be placed at the service of the tire man and should be equipped with tube racks, test water tank, tire tools, stock, etc.

Drivers should receive regular class instructions on tire care, curb wear, brakes, flats, valve caps applied, etc. Moving pictures, charts, tire exhibits are available to organize this instruction.

A system of knowing what tires can be profitably repaired should be installed and insistence made on expert tire work.

A system accounting for every tire, repair and tire road delay should be set up.

BARBOUR BLACK

Carbon black produced by a new and improved patented process and known as Barbour black, is said to be of exceptional reinforcing quality for tire treads and other rubber products. Carbon black is obtained ordinarily by burning natural gas under about eight inches of water pressure and there is considerable loss by soot escaping into the air. By the Barbour process the gas is burned under only one-half inch of water pressure. The escape of black into the air is practically prevented by drawing the uncondensed black into a filtering apparatus which retains the coarser black while that which passes through with the air is collected in light gravity mineral oil and clean air escapes into the atmosphere. The oil-absorbed black is used in the manufacture of printing ink. The condensed and filtered black is used for rubber compounding.

Ampar Balloon Tires

Standard Tires Made from Rubber Grown in the United States
Ampar Crude Rubber Equal to Plantations in Quality
at a Substantial Saving in Price

THE importance of an unlimited supply of high grade crude rubber from sources within continental United States can scarcely be overrated industrially, economically or as a potential factor in national defense. The possibility of such an outcome has for many years engaged the attention of the Intercontinental Rubber Co. of New York, under the direction of George H. Carnahan, president of the company, assisted by a group of scientists and experts including Dr. William B. McCallum, botanist, and Dr. David Spence, rubber chemist. Their work has been confined to the development of guayule rubber obtained from the guayule shrub (*Parthenium Argentatum*) native in Northern Mexico and a comparatively small area in southern Texas. The project undertaken amounted to taking a wild shrub that was hard pressed by stronger plants in the competition for moisture in desert regions, taming it and making it prosper under controlled conditions of soil, moisture and cultivation.

Tire Made from United States Grown Rubber

The accomplishment of taming the guayule plant was a most noteworthy success. It required that the plant adapt itself from a semi-desert environment to conditions of intensive culture and forced growth without losing any of its ability to secrete rubber. After more than 15 years of effort, three important problems were solved: (1) The plant was made to reproduce by seed in a practical way on a large scale, (2) it was made to secrete sufficient rubber under conditions of forced growth, and (3) its successful transplanting to the field under control from the nurseries.

The factors which govern the success of the planting operations and the subsequent cultural practices have been worked out in field detail at Salinas, California, where cultivation and harvesting of guayule shrub is now conducted on a commercial scale with the aid of machinery specially designed for the work. Having solved the essential problems of cultivation and extraction of guayule rubber, the company turned its attention to improving the technical value of the rubber. This has been gratifyingly accomplished in the production of Ampar brand of guayule. The name is a combination of the first syllables of American Parthenium. Ampar is specially processed by a method evolved by Dr. Spence which gives to it valuable physical properties not hitherto possessed by any other crude guayule rubber.

In its preparation Ampar is not deresinated but its so-called resin constituents are reduced, controlled and stabilized. This processing results in producing a clean, uniform high grade rubber. It is wrapped with a non-adhesive paper, packed 100 pounds net in wooden boxes, and at a rubber factory it is easily removable from the box, unwrapped free of the paper and is ready at once to be broken down on a mill or in a Banbury mixer.

The field for Ampar is thus greatly enlarged. It is actually equivalent pound for pound to plantation rubber in high rubber compounds such as for inner tubes where it can be substituted for smoked sheets up to 20 per cent of the rubber content of the mixing without diminishing the desired physical properties of the finished product. Its use is accompanied also by the practical advantages of easy mixing, smooth running on calenders or tubing machines, and in preventing scorching when high speed accelerators are used.

A most convincing test of the practical value of this rubber extracted from a lot of guayule shrub grown at Salinas, California, has recently been concluded. A set of 31 by 5.25 4-ply balloon tires was built at the Racine, Wisconsin, plant of the Ajax Tire & Rubber Co., where Dr. Spence collaborated with Vice President Vance and Chief Chemist Underwood. In these tires no rubber other than Ampar was used. The replacement of the plantation rubber necessitated certain modifications of the compounds to meet curing conditions, etc. The resulting tires under long continued road tests have proved to be equal in mileage value and general service quality to any tire produced with the same rubber content of plantation rubber.

A few of the test results on the tread and friction stocks of these tires are as follows: The tread stock gave a tensile at break of 3,700 pounds per square inch, elongation at break of 550 per cent, plastometer hardness of 70. The adhesion between the tread and breaker was 32 pounds. The ease of mixing these stocks was noteworthy. Nonex accelerator was used without scorching. The tires were heated 10 minutes to reach 274 degrees F. and cured in 45 minutes at that heat.

The problem of whether the United States can grow rubber equal to the best plantation grades is no longer open to question on the technical side. Its success commercially seems equally assured since, according to President Carnahan in his paper read before the American Chemical Society, "one well paid American farmer or mechanic can produce as much of this improved guayule rubber as fifteen coolies continuously employed on a Malayan Hevea plantation." This sounds like the real answer to our national crude rubber problem.

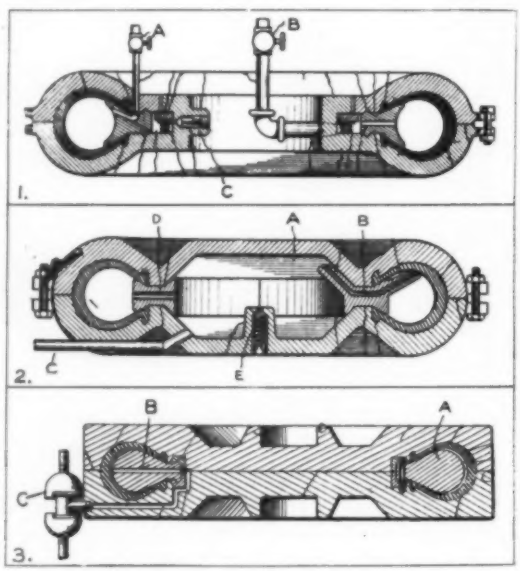
Water Cured Tires
Important Advancement in Tire Manufacture

Development of molds for water curing casings
Perfect control of vulcanizing conditions
Laursen process described

THE necessity of molding tire casings under heavy pressure to secure in the cured article the utmost compactness and adhesion of construction has resulted in various types of molds and methods of operation.

The first general method of tire curing consisted in flanking the casing on its building core with circular steel side plates for impressing the lettering and size markings, then tightly binding the whole with strong cross wrapping of wet cotton fabric. This somewhat crude method prepared the casing for vulcanization in open steam.

To secure greater cohesiveness of structure, molds with anti-skid engraved treads were introduced. In these the tire mounted upon an iron core was heavily compressed and cured in a steam vulcanizing press. This method necessitated accurate fitting of the tire to the space allowed for it between the core and the mold. Deviation from this condition caused a heavy loss in blemished or worthless tires by defects too numerous to mention. Escape from this wasteful method was found in substituting for the metal core an inflatable air-bag by which internal pressure, in any desired amount, could be exerted to force the carcass structure into contact with the mold cavity at all points. This method rapidly gained general adoption notwithstanding the expense of the perishable rubber airbags.



Three Types of Water Cure Tire Molds

In recent years a number of important improvements have extended the life of airbags, one of the notable advances in this respect being the substitution of water in place of air for the pressure medium. Elimination of both air and water bags for tire molding is the next phase sought. Two of the methods now being tried to accomplish this purpose and to produce better tires at less curing expense are the clay blown method of Gammeter[1] and the water cure method of Laursen.

Curing rubber goods in hot water affords not only the most easily controlled application of temperature and pressure but as applied to tires by the Laursen system heat may be conserved from cure to cure and inflating bags are wholly eliminated. Like the earlier systems of tire molding and curing this one is in process of development and simplification as the result of practical factory application.

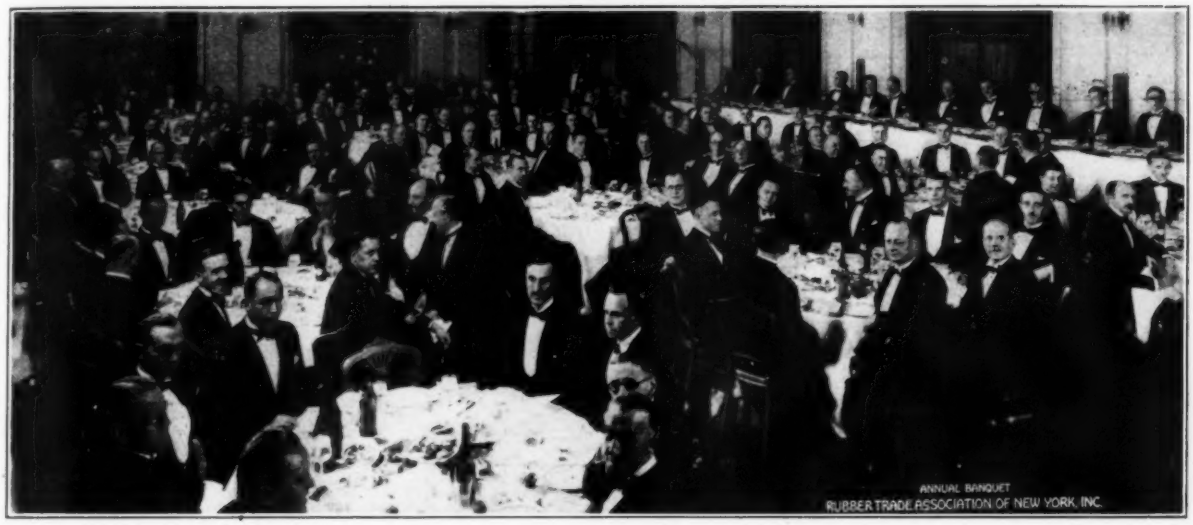
Thus far three forms of tire molds have been designed for curing tires by hot water in a press heater. The first of these was that represented in Figure 12. In the operation of this mold a system of piping *A* allows the air enclosed in the mold to escape as the hot water for curing enters from the hydraulic system on the opposite side at *B*. Excess water pressure beyond that desired in the tire escapes automatically by action of a relief valve *C* located on the inner circumference.

A second development of the Laursen mold is shown in Figure 2.[3] In this case there is no opening through the center of the mold but instead a chamber or cavity *A* is formed into which the air contained in the tire escapes through the passage *B*, while hot water from the hydraulic system enters the central chamber by the pipe *C* and finds its way into the tire by the opening *D*. As in the mold in Figure 1, excess pressure escapes from the mold through the relief valve *E*.

Tending still further toward simplification the mold in Figure 3[4] has been developed. In this case there is no central pressure chamber but the halves of the mold make a flat solid contact from cavity to cavity, weight being reduced by recesses in the metal on the outside of each half mold. The space not filled by the tire casing is occupied almost completely by a solid metal core *A*. This is perforated radially by a passage *B* which detours around the cavity to the outer circumference of the mold where connection is made with a coupling *C* to the hydraulic system.

To use this mold it is only necessary to place the core *A* with its attached bull ring within the tire as usual. The tire thus mounted in place in one-half of the mold and covered with the other half, connection is made at the coupling *C* and the assembled mold is ready for the curing operation.

[1] INDIA RUBBER WORLD, December 1, 1927, pp. 65-6.
[2] U. S. patent No. 1,650,078.
[3] U. S. patent No. 1,652,019.
[4] U. S. patent No. 1,652,020.



Drucker-Baltes. N. Y.

Annual Dinner of the Rubber Trade Association of New York, Inc.

Rubber Trade Association Dinner

THE annual dinner of the Rubber Trade Association of New York took place in the Music Room of the Biltmore Hotel, New York, on the evening of December 15, 1927.

About two hundred members of the Association and their guests were present at this yearly function where a good dinner, unique entertainment and a jolly good time are a foregone conclusion.

There were many new faces present and many old ones absent in the convivial gathering of rubber men in the anteroom where friendly greetings were exchanged before the dinner.

The banquet was most excellent and the orchestra enlivened the occasion by popular airs, and familiar tunes, led by the chorus leader, were sung by all in hearty unison. "It's always fair weather when good fellows get together."

When the last course was served and the cigars lighted, President Pusinelli called for order and introduced F. R. Henderson, toastmaster of the evening, who announced that there were many gifted performers within the association and the evening's program would be given largely by crude rubber talent.

J. S. Rodenbough, lyric tenor sang "Who is Sylvia?" by Schubert, with artistic feeling. D. A. Patterson officiated at the piano.

Songs of other days were then rendered by the male quintet consisting of J. Lewis, W. H. Bass, J. S. Rodenbough, D. A. Patterson and D. D. Haldane.

An original movement in E major for the piano was played by the composer, R. L. Chipman, accompaniment on the drums by B. Manchester.

The "Cavaliers," well-known male quartet of the Cities Service Company, sang several selections in their inimitable manner. The evening's program was then brought to a merry close by the humorous ditties of Miller and Farrel, singers and guitarists of vaudeville fame.

All credit for this most enjoyable evening is due to the Dinner Committee consisting of Fred B. Peterson, chairman; L. V. Stiles and J. S. Rodenbough.

At the speakers' table were: F. Pusinelli, president of the association; D. D. Haldane, vice president; W. E. Bruyn, F. R. Henderson, C. T. Wilson, former presidents; R. L. Chipman, treasurer; S. J. Goldsmith and N. M. Behr, attorneys for the association; J. P. Sullivan, former secretary-manager; Walter Dutton, secretary, Rubber Exchange of New York; E. G. Holt, Chief Rubber Division, Department of Commerce; and B. G. Davy, secretary-manager of the Rubber Trade Association of New York.

RUBBER ASSOCIATION MEETING AND DINNER

The thirteenth annual meeting of The Rubber Association of America, Inc., will be held in the West Ball Room of the Hotel Commodore, Lexington avenue and 42nd street, New York, N. Y., beginning at 10:30 A.M., January 9, 1928. Luncheon will be served in connection with the meeting.

The twenty-eighth annual dinner will take place in the Grand Ball Room of the Hotel Commodore on January 9, 1928, at 7:00 P.M. Col. W. J. Donovan, assistant to the Attorney General of the United States, will be the speaker of the evening. Reinald Werrenrath, baritone, will sing. Ladies admitted to the balcony boxes at 9:00 P.M. Tickets for boxes which hold six persons should be obtained from the Secretary. Dinner seating reservations close Wednesday evening, January 4, 1928.

NEW CARBON BLACK PROCESS

In a new process for producing carbon black, a preheated diluent gas is mixed with the hydrocarbon gas which is to yield the black and the mixture is further heated so as to decompose the latter gas and liberate solid carbon particles, which are separated from the decomposition products.—E. P. Spear and R. L. Moore. Canadian patent No. 271,013, May 24, 1927.

EMULATING THE EXAMPLE SET BY ITS GREAT NORTHERN neighbor, Mexico has put a high protective tariff on rubber-covered wire and, shielded by such a duty, it is reported to be planning to manufacture such wire on a large scale.

EDITORIALS

Laying the Synthetic Ghost

THE oft-repeated reports that the German Dye Trust will before long produce synthetic rubber by an exclusive process and on an extensive commercial scale do not appear to give American chemists much anxiety. And a recent advance of some 20 per cent in the value of crude rubber would indicate that dealers in the commodity are not much alarmed either about synthetic prospects. Germany has many notable achievements in chemical research to its credit, but its primacy in this regard may soon be decisively challeneged by America. Able and tireless research workers, aided by enterprising industrialists, have been working long and quietly on problems akin to those which the German Dye Trust is said to be solving so spectacularly, and it is intimated that their unheralded achievements will prove to be little less than remarkable.

According to a recent statement, the success of the German rubber experiments—admittedly incomplete—hinges upon the cheap production of isoprene or its homologs as a by product in the liquefaction and hydrogenation of soft coal through a modification of the Bergius process. But, according to an American authority, there are in this country several concerns which are employing bituminous coal treating processes which give promise of not merely duplicating the Bergius products but of producing them much more efficiently. Hence is the comforting assurance given that when Americans require synthetically prepared rubber, methanol, gasoline, etc., there will be an ample domestic supply at fair prices.

It is not presumed that either the foreign or domestic synthetic rubber will for many important uses ever replace the natural article. Isoprene and its homologs may indeed be converted into a rubber that may prove valuable as a compounding material, but it is expecting much to catalyze any of such "starting points" into a duplicate of the highly polymerized molecule of caoutchouc.

Damping Din of Subways

RECENT research of psychologists and acoustical engineers confirms the general impression that the roar of great cities is not only a discomfort but is so nerve racking as to greatly lessen efficiency and to even shorten life. Excessive reverberations in even structural steel buildings can be muffled, it is claimed, at a gain that easily offsets the moderate cost. If noise above ground can be controlled, it seems fair to believe that the insufferable clangor of the underground railways may be deadened.

The time is ripe for the authorities concerned with the abatement of harmful and unnecessary noises to insist upon the mitigation of a great and harmful nuisance in the operation of subway trains. That the rubber industry can effectually aid in such a humane endeavor is highly probable. It has the material par excellence that subdues sound, connotes comfort, and economizes energy. Given proper opportunity, its chemists can doubtless produce a compound which should answer requirements, and its engineers can be expected to devise efficient means for its application.

Ever since Thomas Hancock, the contemporary of Charles Goodyear, in England suggested the use of rubber for cushioning railway tracks, its merits for such purpose have been considered, but little headway seems to have been made. After the war a Rubber Growers' Association contest brought forth several suggestions that may be available for thus easing jar and vibration.

Rubber springs or other devices for such purpose would have to be relatively cheap, durable, and easy to apply. Rubber manufacturers should not find it difficult to provide at low cost a material akin to bumper or tire tread stock that would be amply tough and oil-resistant, and the secure and convenient attachment of such pads between rails and sleepers should present no insuperable problem. That such shock reduction installation could not help effecting a perceptible saving in railway operation is a factor that should, too, commend the test to the most practical managers.

* * *

"IT'S AN ILL WIND," ETC. THE AMERICAN AUTOMOBILE industry may have slumped awaiting the debut of a new and much advertised low priced car, but the crude rubber market is said to have been helped by that factor. Bullish enthusiasm abroad was kindled by reports that the new car would cause such an intensive competition among car makers here that not only would automobiles soon be cheaper, more widely distributed, and worked harder, but that tire production would in consequence go forward by leaps and bounds. The prediction quite accords with the 1928 tire outlook.

Our New Year's Greetings

ONCE again comes another New Year with its opportunities, ambitions and promise. Our good wishes would further them all.

¶Looking forward, the coming year bids fair to be the most notable in accomplishment that the rubber industry has ever enjoyed.

¶INDIA RUBBER WORLD wishes a very happy and prosperous New Year to all its friends the world over.

American Rubber Technologists

¶Technical superintendents, process and development engineers in rubber manufacturing and reclaiming plants, research, testing and service laboratories are invited to send their biographical data to us for publication

HENRY A. MIDDLETON, engr. *b.* Sept. 24, 1859, N. Y. City; Pub. sch. of Bristol, R. I.; foreman, National India Rubber Co., 1880-1887; supt. Erie Rubber Works, Erie, Pa., 1888-1894; consult. engr., Hartford Rubber Works Co., Hartford, Conn., 1894-1895; supt., India R. & T. Co., Akron, O., 1896-1900; fact. mgr. Pennsylvania R. Co., Erie, Pa., 1900-1903; consult. engr., 1903-1915; fact. mgr., McLean T. & R. Co., East Liverpool, O., 1915-1925; consult. engr., since 1925. *Author:* Rubber process and tire patents. *Member:* Chamber of Com., Country Club, and Rotary Club, East Liverpool, O. Mason. *Address:* Geneva, O.

John Dunn Morron, chem. *b.* May 10, 1891, Lisbon, O. B. S. in chem. eng., Case Sch. App. Sci., 1913; chem. Mechanical R. Co., Cleveland, O., 1913-1917; director of lab. and reclaim department since 1917. *Member:* Am. Soc. Test. Mat., Am. Chem. Soc., and Am. Asso. Adv. Sci., Deuts. Chem. Ges, and Am. Inst. Chem. Engrs. *Address:* 1478 Marlow ave., Lakewood, O.

Albert Foster Hardmann, chem. *b.* 1893, Jane Lew, W. Va.; A. B., W. Va. U., 1917; M. S., Chicago U., 1919; instructor U. of Kan., 1917-1918; chem. Warfare Service, 1918; Goodyear Fellow, Akron U., 1919-1920; research chem., Kelly-Springfield T. Co., since 1920. *Member:* Am. Chem. Soc. *Address:* 755 Cleveland ave., Cumberland, Md.

John Richard Sweetman, chem. *b.* Apr. 5, 1902, Passaic, N. J. Drake's Business Coll., Inter. Corr. Schools; Robins Conveying Belt Co., N. Y. City, 1919; asst. chem. N. Y. Rubber Co., Beacon, N. Y., 1920-1923; chf. chem. Whitehead Bros. R. Co., Trenton, N. J., 1924; chf. chem. La Favorite R. Co., Hawthorne, N. J., 1926-1927; research chem., Hewitt R. Co., Buffalo, N. Y., 1927. *Address:* 35 Van Gorder ave., Buffalo, N. Y.

Donald P. Swisher, chem. *b.* 1894, Brooklyn, N. Y. B. S. in chem. engr., Carnegie Inst. of Tech., Pittsburgh, Pa., 1916; mech. compounder, Republic R. Co., Youngstown, O., 1916-1920; asst. chem., Frederick J. Maywald, Newark, N. J., 1920-1923; chem., U. S. Reclaiming Co., since 1923. *Member:* Tau Beta Pi. *Address:* U. S. Rubber Co., Buffalo, N. Y.

Robert C. Gunther, mech. engr., *b.* Oct. 6, 1888; Miami U., Dayton, O., and Lewis Inst., Chicago, Ill.; foreman, Chalmers Motor Co., Detroit, Mich., 1910-1912; supt., Continental Motor Corp., Detroit, Mich., 1912-1918; supt., Winslow Bros. Co., Chicago, Ill., 1918-1919; supt., Inland Rubber Co., Chicago, Ill., 1919-1925; fact. mgr., McKone T. & R. Co., Millersburg, O., 1925-1927; fact. mgr., Mohawk R. Co., Akron, O., 1927. *Member:* Mason, Shriner. *Address:* 96 North Portage Path, Akron, O.

Henry Lathrop Gilbert Jr., chem. *b.* May 20, 1902, Columbus, O.; A. B. Harvard U., 1924; asst. chf. chem., Dewey & Almy Chem. Co., Cambridge, Mass., since 1924. *Member:* German Chem. Soc. *Address:* Dewey & Almy Chemical Co., Cambridge, Mass.

Cleon Rupert Johnson, chem. *b.* Dec. 15, 1889; S. B., Mass. Inst. Tech., 1907; asst. chem., mgr. efficiency and welfare, asst. to factory mgr., mgr. labor dept., chf. chem., mgr. develop. dept., Goodyear T. & R. Co., Akron, O., 1911-1920; pres. Cornell Tire Sales Co., Cleveland, O., 1920-1921; labor commissioner, Cleveland Chamber Commerce, Cleveland, O., 1921-1924; mgr. develop. dept., Humble Oil & Refining Co., Houston, Tex., 1924-1925; pres., Portland Servel Corp., Portland, Me., 1925-1926; military service, tech. director Gas Defence Div. Chem. Warfare Service, 1917-1918; tech. director, Godfrey L. Cabot, Inc., Boston, Mass., 1927. *Member:* Amer. Chem. Soc. *Address:* 940 Old South Building, Boston, Mass.

Dell F. Harbaugh, chem. engr. *b.* Aug. 7, 1878; pub. sch. of Kansas City, Mo., and Portland, Ore.; foreman and supt. numerous metal, electrical and rubber wks.; inventor several rubber making processes. *Member:* Mason. *Address:* 3436 W. 63rd. St., Chicago, Ill.

Allyn I. Brandt, chem. engr., *b.* Apr. 11, 1898, Cleveland, O.; B. S., Case Sch. App. Sci., Cleveland, O., 1920; compounding and development work, U. S. R. Co., Cleveland, O., 1920-1922; chf. chem., U. S. R. Co., Chicago, Ill., 1922-1926; division compounder, belt, and packing dept. Republic R. Co., Youngstown, O., since 1926. *Member:* Am. Chem. Soc., Sigma Tau Delta, Alpha Chi Sigma, Tau Beta Pi. *Address:* 243 W. Dennick ave., Youngstown, O.

George Lloyd Allison, chem. *b.* May 4, 1890, New Castle, Pa.; B. S., Penn. State Coll., 1912; chem., Emery Mfg. Co., 1912-1914; chem. and inspector, Pittsburgh Testing Lab., Pittsburgh, Pa., 1915-1917. Chem. lab., 1917-1919; in charge pigment testing, 1920-1922; compounder raw materials, 1922-1924; compounder mech. goods, 1924-1926; group head tech. dept. mech. div. in charge of materials and mill room control since 1927, B. F. Goodrich Co., Akron, O. *Member:* Am. Chem. Soc., Mason, Akron U. Club, Akron, O. *Address:* 137 Marvin ave., Akron, O.

Ray R. McClure, chem. *b.* May 19, 1894, Greeley, Kan.; A. B., Sterling Coll., Sterling, Kan., 1916; M. S. in chem., U. of Chicago, 1917; Chem. Warfare Service, Amer. U. Experiment Station, Washington, D. C., 1917-1918; chem., Pennsylvania Rubber Co., Jeannette, Pa., 1920-1927; production supt., Jan. to June, 1927; chf. chem., Century Rubber Works, Chicago, Ill., since June, 1927. *Member:* Am. Chem. Soc., Inst. Rubber Indus. *Address:* 1515 South Third ave., Maywood, Ill.

J. W. Higgins, consultant, *b.* Oct. 9, 1891, Fall River, Mass.; pub. sch., Warren, R. I.; foreman, National India Rubber Co., Bristol, R. I., 1910-1911; foreman, Mechanical Rubber Co., Cleveland, O., 1912; gen. foreman, B. & R. Rubber Co., 1912-1916; gen. foreman, mech. goods div., Federal R. Co., Cudahy, Wis., 1917-1919. Special work, 1919; gen. foreman, druggists' sundries div., 1920-1921; mgr. druggists sundry, rubberizing and cement divisions, 1922-1926; supt. compounding and calendering divisions, 1926-1927, B. F. Goodrich Co., Akron, O.; now practical rubber consultant. *Member:* Masons, Elks. *Address:* 1004 Whittier ave., Akron, O.

Maxwell Meyer Kahn, chem. *b.* May 12, 1886; A. B., Columbia U., 1906; rubber analyst, U. S. Navy Yard, Brooklyn, N. Y., 1909-1912; chf. chem., N. Y. Insulated Wire Co., New York, N. Y., 1913-1916; chf. chem., Brunswick-Balke-Collender Co., Muskegon, Mich., 1917; asst. chf. chem., Kelly-Springfield T. Co., Cumberland, Md., 1917-1924; tech. director, Overman Cushion T. Co., New York, N. Y., 1924-1926; vice pres., fact. mgr., Raritan Rubber, Inc., New Brunswick, N. J., since 1926. *Member:* Am. Asso. Adv. Sci. *Address:* 42 Oak St., Belleville, N. J.

Carl C. Daily, chem., *b.* Sept. 11, 1895, Akron, O.; B. A., Ohio Wesleyan, O., 1916; Akron U., 1917; chem., Firestone Tire & Rubber Co., Akron, O., 1916-1917; U. S. Army, 1917-1919; research and compound dept., 1919-1921; material division mgr., American Hard Rubber Co., Akron, O.; tech. salesman, C. P. Hall Co., Akron, O., since 1921. *Member:* Delta Tau Delta, Akron U. Club, Am. Chem. Soc., Masons. *Address:* 1031 Emma Ave., Akron, O.

Samuel Adinoff, chem. *b.* 1886, Russia; came to America 1906; student in chem., City Coll., N. Y., and Polytechnic Inst., Brooklyn, 1911-1916; chem., National Synthetic Co., Perth Amboy, N. J., 1915-1917; chem., Van der Linde Rubber Co., Toronto, Ont., 1917-1918; chief chem., Gillette Rubber Co., Eau Claire, Wis., 1918-1919; fact. mgr., Paul Rubber Co., Salisbury, N. C., 1919-1924; fact. mgr., and treasurer, Admiar Rubber Co., Brooklyn, N. Y., 1925-1927. *Member:* A. C. S. *Address:* 586 Georgia ave., Brooklyn, N. Y. N. Y.

John Harry Matthews, engr. *b.* Mar. 3, 1893, Newark, N. J.; M. E., Stevens Inst. Tech., 1914; mech. draftsman, foreman compressed asbestos sheet dept. and asst. on experimental work, abrasive wheel dept., Manhattan Rubber Mfg. Co., Passaic, N. J., 1914-1917; second lieut. U. S. A. Air Service serving as flying engr. officer, R. M. A.; production mgr., belting, molded goods, automobile mat, brake lining, clutch facing and fan belt depts., Manhattan Rubber Mfg. Co., Passaic, N. J., since 1918. *Member:* Tau Beta Pi. *Address:* 45 Beverly Road, Upper Montclair, N. J.

What the Rubber Chemists Are Doing

Rubber Technologists Organize New York Group

TO further aid the Rubber Division of the American Chemical Society in the enlargement of its activities by means of group organizations within the division, Chairman Harry L. Fisher recently appointed local group chairmen for the preliminary work in their respective sections as follows: R. P. Dinsmore, Akron; C. R. Boggs, Boston; A. A. Somerville, New York; R. B. Stringfield, Los Angeles.

A. A. Somerville has planned to launch the New York group at a grand rally and dinner to be held at 6:30 p.m., Wednesday

F. R. Henderson

A. A. Somerville

evening, January 11, 1928, in the grill room of the Beaux Arts, 80 West Fortieth street, New York City. This dinner is planned to further the interests of the Rubber Division by bringing together those chemists and technologists who ordinarily are unable to attend the regular spring and fall meetings that occur in conjunction with the American Chemical Society.

The program of the affair provides for gathering at 6:30 and devoting a half hour to getting acquainted previous to the dinner, following which Frank R. Henderson, president of the Rubber Exchange of New York, will deliver an address on "Buying and Selling Crude Rubber." Mr. Henderson is an authority on this subject and his account of the functioning of the crude rubber markets in Singapore, London and New York will prove very interesting and informative. Following Mr. Henderson's remarks, the meeting will be thrown open for questions and discussion.

During the evening, time will be taken to elect a secretary-treasurer. A spring meeting will probably be planned by Mr. Somerville and on that occasion a regular chairman will be elected to serve the following 12 months. It may prove practicable to hold three or four group dinner meetings a year. The next one will probably take place in March.

The selection of the Beaux Arts as the place for holding the dinner is particularly fortunate because of its easy accessibility to transportation lines. The social session will be held in a reception room adjacent to the grill. The latter accommodates about 200 people. The diners will be seated at round tables holding four, six or eight people, as preferred, and they will remain at the tables during the after-dinner speaking.

It is desired to stress several important points. Dress will be strictly informal. This notice serves as an invitation and none other will be sent. The price of the dinner is $1.50. Reservations may be made by sending remittances to A. A. Somerville, 50 East Forty-second street, chairman on dinner arrangements.

Conversion of Rubber into Thermoplastic Products[1]

HARRY L. FISHER[2]

Part I Method of Preparation and General Properties

Abstract

By heating in sheet form a mixture of rubber with approximately 10 per cent of its weight of either an organic sulphonyl chloride or an organic sulphonic acid, for several hours at 125-35 degrees C., the rubber is converted into tough, thermoplastic products resembling gutta percha and hard balata. If heated similarly in bulk there is a pronounced exothermic reaction and the products formed are hard and thermoplastic like shellac. *p*-Toluenesulphonyl chloride and *p*-toluenesulphonic acid are suitable reagents. A mixture of 7.5 parts of *p*-phenolsulphonic acid and 100 parts of rubber, under similar conditions, gives a flexible product similar to gutta percha, which is soluble in benzene, is a very good adhesive, and is the basis of the Vulcalock process. Five parts of concentrated sulphuric acid milled into 100 parts of rubber and heated as above give balata types but not the soluble shellac types.

The products have been given the general name "thermoprene," and the following suffixes are used in order to designate the different types: GP, HB, and SL.

Part II Chemistry of the Reaction

The shellac-like products formed by the action of organic sulphonic acids on rubber have been studied chiefly. After purification the chief constituent is found to be a hydrocarbon with the same empirical formula as that of rubber, C_5H_8, and it is 55 to 60 per cent as unsaturated as the rubber hydrocarbon. Addition products of hydrogen chloride and hydrogen bromide have been prepared. Vulcanization with sulphur gives a maximum combined-sulphur content of about 21 per cent, corresponding to 57 per cent unsaturation as compared with rubber. Oxidation, hydrogenation, bromination, nitration, etc., have also been studied. The purified hydrocarbon is white and is completely soluble in the rubber solvents and insoluble in alcohol, acetone, etc. It is much more stable toward heat than rubber. The gutta percha and balata types are only partially soluble, but analyses, yields, etc., indicate that they consist of similar isomeric hydrocarbons.

New Rubber Softeners

Research has recently been directed toward the study and development of softeners as aids for mixing with the least injury to the physical properties of rubber, to expedite volume production and otherwise aid in processing. Two such materials most recently offered to rubber compounders are known as "Tasco W. S. No. 1" and "Tasco A."

Tasco W. S. No. 1 is a high grade hydrocarbon softener containing 10 per cent of free fatty acid, which has a melting point of 270 degrees F. During mixing it is taken up by the rubber very readily, without making the stock excessively tacky. The results given by this acid softener with respect to dispersion of fillers and accelerator activation are remarkable. It may be used without any degradation of quality. Although this material does not bloom appreciably, it gives excellent resistance to checking on exposure to light, and ages very satisfactorily.

[1] Presented before the Division of Rubber Chemistry at the 73rd meeting of the Am. Chem. Soc., Richmond, Virginia, April 11-16, 1927.

[2] The B. F. Goodrich Co., Akron. Present address U. S. Rubber Co., 561 West 58th street, New York, N. Y.

Tasco A is another entirely novel development. It is a hydrocarbon-rubber mixture, with a specific gravity of 1.20, melting point 270 degrees F. In addition to its possibilities as an ingredient for rubber mixing it may be employed as a base for cold molded articles. When incorporated in a rubber compound, it not only facilitates the handling of the uncured stock, but also gives superior physical properties to the cured stock. From the quality standpoint in high grade compounds, it can replace hard mineral rubber to advantage in order to secure improved resistance to tear and abrasion. Also as an economy measure, in cheap stocks, this product can be substituted for more expensive reclaimed rubber or diluent fillers. It gives improved handling properties without appreciably changing the stress-strain characteristics of the cured compound.

Dipping Viscosimeter

A viscosimeter is somewhat expensive and inconvenient for performing factory control tests of the viscosity of cement for dipped goods. A simple and convenient substitute, devised and patented in Germany, consists of a thin metal template perforated with groups of circular holes of different diameter. The openings are numbered arbitrarily. Tests of viscosity of a rubber cement are made by dipping the template at the end having holes appropriate to the thickness of the solution being tested. The template after immersion to depth of the dotted line is immediately withdrawn. Owing to its surface tension the solution forms a continuous covering or film over the smaller to medium size holes but will not span the larger holes. By holding the template in vertical position, or nearly so, the solution will run more or less rapidly over the film which covers the smaller holes and by a little practice the observer can form reliable conclusions as to the viscosity of the solution. The lower half of the template as pictured is suitable for testing thin solutions and the upper half for thick solutions.

Rubber from Latex by Means of Alkali

In a recent issue of *Berichte der Deutschen Chemischen Gesellschaft*, Pummerer and Pahl describe their method of obtaining pure rubber from preserved latex, one to two years old, by means of alkali. The total rubber thus obtained was translucent, not sticky, free of nitrogen, contained 0.007 per cent of ash and cured normally. This rubber yielded 35 per cent of gel rubber in a test in which air was strictly excluded. The gel rubber was brownish and viscous, the sol rubber snow white and very elastic. Purified rubber vulcanized with 10 per cent of sulphur behaved in respect of degree of cure and physical values like the best plantation rubber; from this it is inferred that the properties of technical soft rubber should be ascribed to pure hydrocarbon. The insulating powers of a hard rubber prepared from pure rubber with 30 per cent of sulphur were three times as great as that of a corresponding hard rubber from crepe. Vulcanized for 210 minutes with 7½ per cent of sulphur, both sol and gel rubber remained undercured.

SELF VULCANIZING COMPOUNDS

Compounds and solutions which are self-curing, or which vulcanize without the application of heat, contain raw rubber and in some cases reclaim, zinc oxide, sulphur, and zinc or cadmium normal or iso-propyl xanthogenate, either the sulphur or the xanthogenate, alone or in solution or admixture, being added shortly before the composition is required for use. A cementing solution is prepared by adding either powdered sulphur, sulphur solution, or a solution of sulphur and rubber to a solution of rubber, zinc oxide, and xanthogenate. A tire dough is similarly made, the volatile solvent being reduced in amount or replaced with cottonseed oil or fluid balata resin. Fillers and coloring ingredients, as carbon black, lampblack, antimony sulphide, iron oxide, refined clay, etc., may be added.

Progress Report of the Physical Testing Committee

The Physical Testing Committee of the Rubber Divisions of the A. C. S. reports on the importance of controlling atmospheric temperature and relative humidity while conditioning rubber test samples at various stages of preparation and testing.

The purpose of the work which the committee has undertaken is to determine the effect of the variables which influence the results of physical tests on rubber. The investigation has proven that variations in temperature which may occur from day to day in an uncontrolled testing room may affect the physical tests to as greatly as 25 to 40 per cent change in the time of cure, while relative humidity affects the results to only a minor degree. Furthermore, variations in the absolute humidity of the room in which the unvulcanized rubber is stored between the time of mixing and the time of curing may affect the tensile strength and modulus of rubber compounds to as great a degree as does the temperature after curing.

It is therefore apparent that laboratory tests which are conducted under uncontrolled conditions of temperature and humidity may give highly erroneous results and may even give misinformation which is worse than no information. The committee, therefore, recommends that mixed stock prior to curing and cured stock prior to testing be conditioned for not less than twenty-four nor more than twenty-eight hours at 82 degrees F. ± 2 degrees and 45 per cent relative humidity ± 3 per cent and that the testing room be maintained at 82 degrees F. ± 2. If a temperature of 82 degrees F. cannot be maintained for conditioning the mixed stock prior to curing, the committee recommends a relative humidity corresponding to the temperature used which gives an absolute humidity equal to that obtained under the former conditions. The temperature of the testing room should be controlled within the above stated limits but it is not necessary to control the humidity of the entire room. A small conditioning cabinet in which the standard humidity is maintained has been found to be sufficient.

The membership of the Physical Testing Committee of the Rubber Division is as follows: J. E. Partenheimer, Fisk Rubber Co., chairman; E. R. Bridgwater, E. I. du Pont De Nemours Co.; D. F. Cranor, Binney & Smith Co.; E. B. Curtis, The United States Rubber Co.; J. W. Schade, The B. F. Goodrich Co.; N. A. Shepard, The Firestone Tire & Rubber Co.; A. A. Somerville, R. T. Vanderbilt Co.; W. W. Vogt, The Goodyear Tire & Rubber Co.; P. L. Wormley, Bureau of Standards.

The committee concluded its report with the following reference to its future work.

Sufficient tests will now be made to determine the importance of effect of changes in relative humidity and temperature before milling. For the next major problem, the committee has decided to investigate the effect of relative humidity and temperature on resistance to abrasion when stocks are exposed both between mixing and curing and between curing and testing. This work will not be concerned with the correlation of abrasion tests and service, but will be carried out on two different types of machines where tests are readily duplicable.

It is also announced that the Rubber Division and The Firestone Tire & Rubber Co. have appropriated funds to continue the work of the committee for 1928 and it is hoped that the results accomplished will demonstrate the value of the work in such manner as will justify provision of financial support to continue the work indefinitely.

CRUDE RUBBER IMPORTS

Figures issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce place imports of crude rubber into the New York customs district for November at 36,395 tons, value $25,781,876. Imports into Massachusetts during the month amounted to 1,341 tons, value $924,682, making the combined volume imported into the two districts 37,735 tons.

Chemical Patents

United States

1,648,184—Accelerator. The preparation of substituted guanidines involving the addition of a desulphurizing agent to an alcoholic ammoniacal solution of a substituted thiourea.—E. K. Hudson, New York, N. Y., assignor by mesne assignments, to The Grasselli Chemical Co., Cleveland, O.

1,649,782 Compounding Ingredient. This is a dried co-precipitated zinc sulphide and barium sulphate having the capacity of imparting to compounded rubber a resistance to abrasive wear superior to ordinary zinc oxide.—F. G. Breyer, Palmerton, and C. W. Farber, Bowmanstown, both in Pennsylvania, assignors to The New Jersey Zinc Co., New York, N. Y.

1,650,975 Accelerator. An addition product of an addition product of a metallic salt and a primary amine.—C. W. Bedford, Akron, O., assignor to The B. F. Goodrich Co., New York, N. Y.

1,651,737 Compounding and Curing Rubber. A compound or mixture of metallic oxide, sulphur and an organic accelerator is applied to the surface of a sheet or piece of rubber which is then subjected to vulcanizing heat.—O. H. Smith, New York, N. Y., assignor to The Naugatuck Chemical Co., Naugatuck, Conn.

1,651,931 Accelerator. A mixture comprising the aldehyde derivative of dehydrated ethylidene aniline and the aldehyde reaction product of the aldehyde derivative of dehydrated ethylidene aniline.—C. O. North, assignor to The Rubber Service Laboratories Co., both of Akron, O.

1,652,101 Accelerator.—H. W. Elley, assignor to E. I. du Pont de Nemours & Co., both of Wilmington, Del.

1,652,141 Compounding Rubber. The admixture of latex to an excess of barium chloride with sodium sulphate thus coagulating the rubber of the latex.—H. A. Endres, assignor to The Goodyear Tire & Rubber Co., both of Akron, O.

Dominion of Canada

275,974 Accelerator. A reaction product of an amino-ammonium salt of dithiocarbamic acid from which the basic radical has been removed.—The R. T. Vanderbilt Co., New York, N. Y., assignee of the Michigan Chemical Co., Bay City, Mich., assignee of S. B. Molony, Wellesley Hills, Mass., all in U. S. A.

275,986 Rubber Goods. A process for the introduction of conditioning substances into rubber dispersions in which sulphur is heated in such percentages with vulcanizable oils that the resulting substance contains beside the sulphur with the oil a surplus capable of vulcanization. This dispersion is added to the rubber dispersion.—P. Klein and A. Szegvari, both in Budapest, Hungary.

United Kingdom

277,194 Treating Latex. Plastic compositions are obtained by treating caoutchouc latex with dissolved casein and coagulating the mixture.—A. Biddle, Trenton, N. J., U. S. A.

277,338† Accelerator. Sulphides of the thiophenols, amidothiophenols, thiazoles, etc.—Goodyear Tire & Rubber Co., Akron, O., U. S. A.

277,375† Rubber Coatings. Rubber coatings are produced on surfaces of wood, metal, stone, leather, etc., by spraying latex, and simultaneously evaporating the water from the latex by application of heat. The latex may be mixed with other substances, vulcanized, concentrated, etc.—K. D. P., Ltd., 28 Fenchurch St., London.

277,376† Molded Articles from Latex. These are made by spraying latex on the surface of a mold and simultaneously evaporating the water by heating it.—K. D. P., Ltd., 28 Fenchurch St., London, assignees of E. A. Hauser, 7 Marienstrasse, Frankfort-on-Main, Germany.

277,928† Dusting Preparation. For the prevention of undesired adhesion of unvulcanized rubber sheets, dusting substances are used which lose their anti-cohesive properties when the sheets are die-stamp welded with hot tools thus preventing weakening of seams. Examples of suitable substances for dusting are naphthaline, acetanilide applied in alcoholic solution, hexamethylene-tetramine, thiocarbanilide applied in aqueous solution, organic salts of metals such as fatty acid salts of lead, zinc, etc.—K. Medgyes, Budapest, Hungary.

† Not yet accepted.

Germany

452,340. Coloring Rubber. Continental Caoutchouc & Gutta Percha Compagnie, Hannover.

452,466. Method of Vulcanization. Phil. Penin Gummiwaaren-Fabrik, A. G., Leipzig-Plagwitz.

Rubber Covered Chemical Equipment[1]

The characteristic feature of a German process for protecting industrial chemical equipment with rubber, regardless of its shape, is a kind of chemical combination between the prepared rubber coating and the metal base.

After the coatings have been applied they can be removed only by force, with hammer and chisel, and then not completely. This adhesive property is particularly useful when the rubber covered apparatus is to be used in vacuum or subject to wide fluctuations in temperature. Apparatus covered by this process can even be used where the treated container or reaction vessel is to be heated, provided the temperature is not allowed to exceed 135 degrees C. It should be noted, however, that temperatures as high as 150 degrees C. can be endured for short periods of time without injury to the container.

The composition of the rubber coating is varied according to the intended use. For example: The coatings are not attacked by concentrated hydrochloric acid, whether pure or impure, even at boiling temperatures. The coatings are stable toward cold nitric acid up to 20 per cent and sulphuric acid up to 60 per cent. For the hot acids these concentration limits must be lowered accordingly. Hydrofluoric acid, gaseous halogens and oxygen have no effect. The coatings have given excellent service against alkalis, alkaline and acid solutions and organic solutions in general, and they are expected to work equally well with the various lacquer solvents.

As for the mechanical properties of the material, for general use a tough semi-hard grade is entirely satisfactory. Special coatings are being made, however, of such hardness that they can be planed, ground, drilled and polished. The adhesion is so strong that a flat strip coated on both sides can be bent double and straightened again without separation or breaking of the coating. The tensile strength is about 2,000 to 2,500 pounds per square inch according to hardness. The elongation is about three to five per cent. The thermal conductivity is low.

According to an official certificate of the Institute of Technology at Braunschweig, the adhesion is so strong that in tearing tests separation is not at the interface between rubber and metal; either the rubber tears, leaving a thin film on the metal, or the metal is torn away.

[1] A. H. Bresser, Berlin, Germany. *Chem. & Met. Engr.*, Dec., 1927, p. 741.

WOULD IMPROVE UPON RUBBER

So long as primary substances lack hundred per cent efficiency, the synthesist may never be quite happy. He feels an obligation to produce something to fully supply Nature's deficiencies. Basic materials almost venerated as ideal in the arts he would scrap as ruthlessly as an iconoclast would objects of ancient worship. Even real rubber is regarded as having decided shortcomings, considered unsatisfactory for some of its most extensive uses, and the hope expressed that chemistry will come to the rescue. Voicing views along this line, Charles F. Kettering of the research department of General Motors Corp. recently said:

"Consider rubber. I can not believe that the rubber tree, when it developed that particular lymphatic circulation which is necessary to heal a tree scar, ever had a pneumatic tire in mind. Nobody can tell me that that particular juice out of that particular kind of a plant is going to make the best rubber tire the world has ever seen, because I think that if the tree had been working on a juice particularly designed for rubber tires it would have made it different. The rubber chemists may not agree with me but since I am not an authority on rubber, I can speak freely."

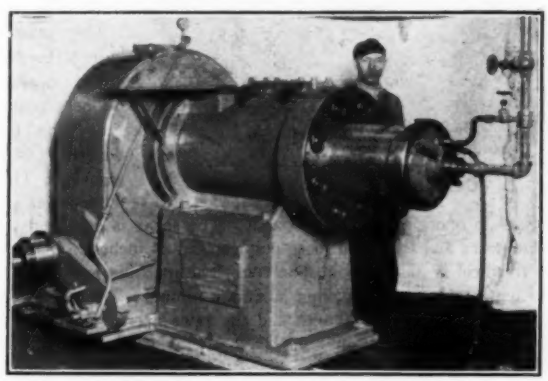
New Machines and Appliances

Giant Stock Strainer

THE widely extended use of reclaim in the tire and mechanical rubber goods division of the industry calls for large capacity and very heavy extruding machines equipped with special strainer heads.

One of the largest and most recent machines for straining reclaim and compounded stocks is here pictured. It has standard 10-inch worm drive with outboard bearing fitted to the strainer shell cap which contains a hardened steel stock worm extension. The worm is provided with a front end delivery of cooling water thereby delivering the coldest water at the critical place. The stock worm is also equipped with a deflector for forcing the water back from the front end of the worm. The strainer cap is also water cooled supplied through flexible hose equipped with quick opening air brake connections. Water to the screw enters straight through the capped end. By disconnecting the airbrake connections and a single union in the piping the entire cooling mechanism can be quickly swung overhead by means of the flexible joint on the piping, thus readily permitting removal of the strainer shell and strainer shell cap.

When applied to straining crude rubber this machine will remove foreign matter more thoroughly than can be done by cracking



Williams Giant Rubber Strainer

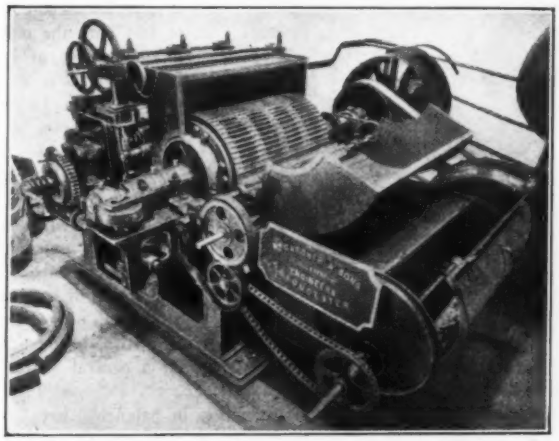
and washing. It will eliminate the drying process and give to the rubber a preliminary mastication that will materially reduce the time of breaking down.—The Williams Foundry & Machine Co., Akron, Ohio.

Scrap Tire Grinder

The reduction of scrap rubber tires to fine crumb preliminary to the reclaiming process is generally done on heavy two-roll grinding mills. This process generally includes cutting up the tires and involves considerable labor and a large expenditure of power. The illustration here shown represents a rubber grinding and sifting combination for handling solid rubber tires.

The grinder consists of a hollow metal drum with a series of serrated steel edges running parallel with its axis. Several tires can be fed from the rear of the machine against the face of this grinding surface at a definite rate using special feed rollers with tooth grips. An automatic clutch on the feeding device acts to prevent exceeding the grinding capacity of the drum so that the rubber is not overheated. The hollow grinding drum is itself cooled automatically during rotation by cool air drawn through it by the vanes on the two sides. This air is delivered to the surface of the rubber being ground at the face of the drum.

The ground product is drawn away by a suction fan and delivered to the air separator. The whole plant operates automatically, requiring only that the feed be maintained. Its power



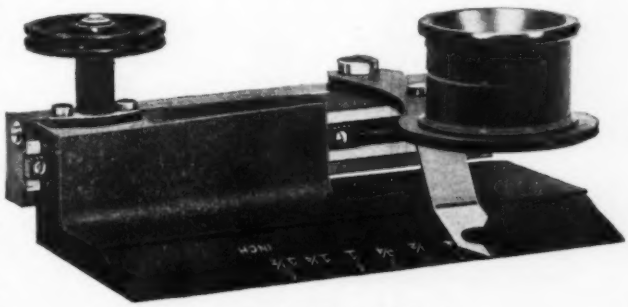
Gardner's Scrap Grinder

consumption is from 25-30 horse power for an output of one hundred weight per hour. The machine is guaranteed by the manufacturers who are well known in the trade.—William Gardner & Sons, Bristol Road, Ltd., Gloucester, England.

Pocket Pick Counter

A newly devised pick counter for the inspection of cloth, etc., is here pictured. It can easily be carried about and combines all the important features of more cumbersome instruments. These are a high grade lens, magnifying 6 diameters, giving a flat field, mechanical forward movement of the lens and needle by means of the thumb screw making counting easier and with less eye strain. The field of vision of this instrument is wider than the range afforded by the ordinary pocket counters used by fabric inspectors.

Special stress is laid on the solid lasting construction of the



Sutter's Focket Thread Counter

apparatus and of the rack and pinion which control the forward movement of the lens and needle for counting. This apparatus will be found particularly convenient for counting picks on woven fabrics for all tire and mechanical rubber goods purposes and the meshes or courses in knitted fabrics for footwear, etc.—Alfred Sutter, 200 Fifth avenue, New York, N. Y.

Static Tire Balancing Machine

The apparatus here pictured is designed for automatically balancing pneumatic or solid tires, and it may be operated by hand or by motor.

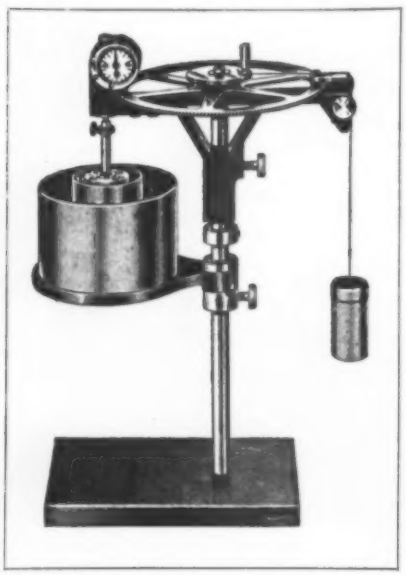
Olsen-Lundgren Tire Balancer

The tire is mounted on an adaptor which in turn is mounted on a ball bearing. In operating the machine by hand the tire is first permitted to come to rest with the maximum weight at the bottom, when it is coupled to a lever weighing system by a quick turn of the hand, after which the tire is rotated through 90 degrees, when the amount of unbalance will be indicated on the small dial shown at the top of the tire. The tire is mounted on a central shaft so that variations in tire weights may be ignored, and which thus also greatly tends to speed up production in balancing tires.

This machine is made in several sizes, and may be used for balancing flywheels, clutch-parts, or assemblies, pulleys, circular saws, emery wheels or any part that may be satisfactorily balanced statically.—Tinius Olsen Testing Machine Co., 500 North Twelfth street, Philadelphia, Pennsylvania.

Viscosimeter for Rubber Solutions

A viscosimeter of the type here shown is especially adapted for measuring the viscosity of rubber solutions. This instrument measures the speed attained by a cylinder revolving in the liquid under test. An adjustable weight acting through a spindle, gear and pinion, causes the cylinder to rotate in the test cup. A revolution counter is connected to the spindle which supports the cylinder, and the number of times required for the latter to make a specified number of revolutions in distilled water and in the liquid under examination forms the basis of comparison.

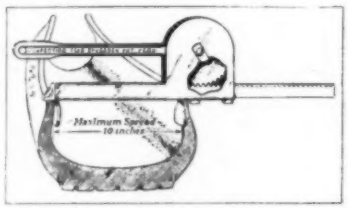


The Stormer Viscosimeter

The operation of the instrument is so simple that the determinations can be quickly made; in a certain instance it has been found easily possible to make 40 to 50 determinations in 15 to 20 minutes. The Stormer viscosimeter is well adapted for measuring results in the centipoise or absolute unit since the readings of the instrument are independent of the specific gravity of the liquid. This is not true of any of the "flow through" types.—Arthur H. Thomas Co., West Washington Square, Philadelphia, Pennsylvania.

Practical Tire Spreader

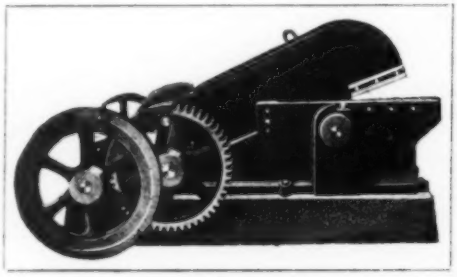
The tire spreading device here pictured is an extremely simple and durable tool, handy for spreading open pneumatic tire casings for inspection or repair. It opens with a single movement of the lever any size tire, including a 9-inch truck tire. It permits thorough examination of every portion of the inside of the casing and locks in place wherever necessary to hold the tire open. All of the movable parts of the tool are made of malleable iron.—Vulcanizers Material Co., Grand Rapids, Michigan.



Tire Spreader

Alligator Shears

The clipping or busheling shear is a most convenient tool for scrap rubber and metal dealers, reclaimers and tire companies, where large quantities of metal or rubber scrap require to be cut into convenient sizes.



Canton Alligator Shears

The machine here pictured is motor operated by belt connection. Its total weight is 4,600 pounds. Three horsepower are required to operate it at full capacity. The shear is equipped with double gears and tight and loose pulleys each 24 inches in diameter. The flywheel is 32 inches in diameter. The machine is operated at 200 r.p.m. cutting speed making 50 cuts a minute. The knives vary from 13 to 16 inches in length and the jaws open 6 inches at the widest point.—The Canton Foundry & Machine Co., Canton, Ohio.

Improved Shoe Stick

The regular method of transporting rubber shoes on lasts in a rubber shoe factory is by placing them on so-called "shoe sticks." These are usually simple straight pieces of flat iron through holes in which short iron dowel pins are riveted in pairs. Such a bar is very heavy and without proper stiffness.

The newest development in this line is a composite stick characterized by lightness, rigidity and durability. It is built of a

Economic Steel Shoe Stick

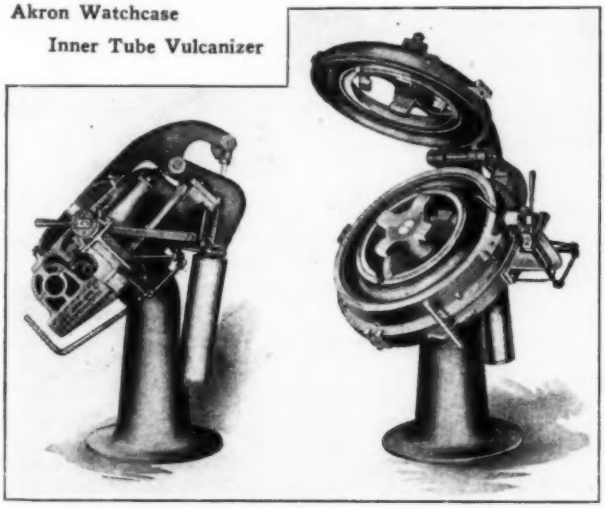
pair of light steel angles separated and riveted to form a bar of T section. The ends are swaged down flat to support the stick in the slots of a making rack or vulcanizing car. The pins for supporting the lasts are of high grade special steel which practically eliminates their breakage while the machine method used for setting them in the stick insures the very essential feature of secure anchorage.—Economic Steel Rack Co., Everett, Massachusetts.

Interchangeable Tube Vulcanizer

The demand of the tire industry for molded inner tubes has brought about the development of special vulcanizers for the purpose. The most recent one is the inclined watch case vulcanizer, two views of which are here pictured. This mechanism embodies a new diaphragm principle which is said will insure perfect inner tubes.

A large hollow cast-iron base supports the stationary half of the heating unit at an angle of 45 degrees. The upper half of the unit is hinged at the upper edge of the lower half and is counterbalanced by a weighted arm in the rear. The mold halves are securely mounted in the heating units and close in accurate regis-

Akron Watchcase Inner Tube Vulcanizer



tration. The inflating valve and auxiliaries are attached on the right side of the lower bearing unit and convenient to the operator's hand.

In operation the hinged and fixed halves are secured together by the locking device shown in the center of the lower unit. This device is quick acting and requires only to be turned slightly by hand to engage four lugs arranged around the inner circumference of the upper unit thus wedging the vulcanizer and contained mold tightly together.

The appearance of this vulcanizer is opportune to meet the growing demand for full molded inner tubes. It is built on the interchangeable principle and embodies all the factors vital to the production of perfect tubes rapidly, rindless and with walls of uniform thickness.—Akron Rubber Mold & Machine Co., Akron, Ohio.

Machinery Patents

United States

1,648,828. Automatic Starcher. This device receives sheet rubber direct from a calender and dusts it on both sides continuously and uniformly. The sheet stock enters and leaves the dust chamber through slits on guide rollers. The dusting material occupies the bottom of the box where it is agitated by a mixing device and air from a motor operated blower.—W. R. Scott, assignor of one half to E. Stevenson, both of Springdale, Conn.

1,648,990. Sheet Stock Windup. By this device sheet stock from a calender may be rapidly and accurately wound up between turns of a cloth liner and the completed roll quickly removed. The sheet stock is led to the windup by a belt conveyer sufficiently wide to carry two rubber strips side by side, in consequence the windup devices are made in two sets. Each set includes two similar units one of which acts while a complete roll is being removed from the other.—T. P. Little, assignor to The Fisk Rubber Co., both of Chicopee Falls, Mass.

1,649,802. Plying Shoe Uppers. This apparatus assembles two formed sheets of material, such as a tacky rubber coated lining fabric and a rubber shoe upper, in face to face contact.—V. H. Bodle and W. E. Jaquith, Akron, O., assignors to The B. F. Goodrich Co., New York, N. Y.

1,649,808. Hose Making Machine. This receives a number of hose mandrels, delivers them successively to operative position, applies one edge of a cover strip to each, and wraps the strip around the mandrel.—C. C. Cadden, F. Slusher and B. A. Evans, all of Akron, O., assignors to The B. F. Goodrich Co., New York, N. Y.

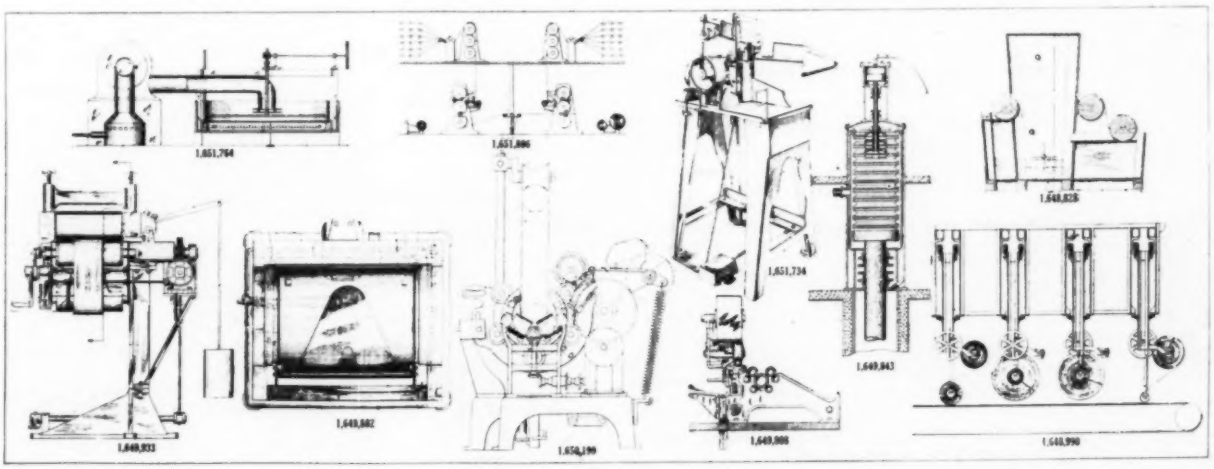
1,649,843. Tire Press Vulcanizer. The manner of securing the molds is such that they may be observed under pressure prior to closing the curing chamber. A mechanically expansible core is used.—J. G. Mooney, Erie, Pa.

1,649,933. Tread Band Machine. This serves to build up a tire tread band consisting of several parts and forming them into an endless band so that the splices of the several components do not come together.—K. J. Thompson, Mansfield, O.

1,650,199. Tire Wrapper. This invention provides improved mechanism for supporting and rotating the tire during the wrapping process. The rotating rollers are so arranged and constructed that they will rotate tires of different sizes through the shuttle at the same rate of speed.—J. Derry, Medford, assignor to A. Terkelsen, Boston, both in Mass.

1,651,734. Applying Second Flipper. The second flipper applied to tire beads is usually applied by hand. This process is slow and tedious and presents possibilities of producing articles which are not uniform. The invention obviates these disadvantages and its operation requires but little skill.—J. A. Schively, assignor to The Goodyear Tire & Rubber Co., both of Akron, O.

1,651,764. Concentrating Latex. This is a simple process for concentrating latex in which the amount of coagulum formed is relatively low. Also the process can be carried out without injurious heating of the latex. The apparatus consists of a shallow pan provided with means for heating the latex, passing a heated gas over its surface and preventing formation of a coagulum film on the latex surface.—W. A. Gibbons and M. G. Shepard, assignors to General Rubber Co., New York, N. Y.



1,651,806. WEFTLESS CORD FABRIC. This apparatus utilizes two sources of supply in connection with calenders of the usual three-roll type which are adapted for rotation only in one direction. The arrangement provides for feeding cords direct from creels to the calenders, coating them on both sides and delivering them to a windup.—M. Castricum, Springfield, E. C. Taylor, Longmeadow, assignors to The Fisk Rubber Co., Chicopee Falls, all in Mass.
1,648,132. TIRE BUILDING DRUM. F. L. Johnson, Akron, O.
1,648,447. TIRE MACHINE ATTACHMENT. H. A. Denmire, assignor to The General Tire & Rubber Co., both of Akron, O.
1,648,586. DENTAL VULCANIZER. M. M. Kohn, New York, N. Y.
1,648,842. FABRIC BAND APPLYING MACHINE. H. A. Denmire, assignor to The General Tire & Rubber Co., both of Akron, O.
1,649,169. TIRE MOLD. L. A. Laursen, Eau Claire, Wis.
1,649,774. RUBBER WORKING MACHINE. W. D. Barnet, assignor to The Xylos Rubber Co., both of Akron, O.
1,649,854. MULTIPLE FASTENER MACHINE. J. E. Perrault, assignor to Hood Rubber Co., both of Watertown, Mass.
1,650,078. VULCANIZER. L. A. Laursen, Akron, O.
1,650,147. STRIPPING MACHINE. H. I. Morris, assignor to The Yoder-Morris Co., both of Cleveland, O.
1,650,197. CONTROLLING MECHANISM. J. Derry, Medford, assignor to A. Terkelsen, Boston, both in Mass.
1,650,198. STRIP EDGE FOLDER. J. Derry, Medford, assignor to A. Terkelsen, Boston, both in Mass.
1,650,674. TIRE CHANGER. G. E. Weaver, assignor to Weaver Mfg. Co., both of Springfield, Ill.
1,650,971. CONVEYER. H. L. Young, Akron, O., assignor to The B. F. Goodrich Co., New York, N. Y.
1,651,389. TIRE REMOVING ATTACHMENT. M. L. Heineke, assignor to The Weaver Mfg. Co., both of Springfield, Ill.
1,651,502. HEAT EXCHANGE ROLL. F. H. Banbury, assignor, by mesne assignments, to Farrel Birmingham Co., Inc., both of Ansonia, Conn.
1,651,735. GUM STRIPPING BEAD MACHINE. J. A. Shively, assignor to The Goodyear Tire & Rubber Co., both of Akron, O.
1,651,837. CALENDER CUTTING DEVICE. A. E. Richey, Fairview, assignor to The Fisk Rubber Co., Chicopee Falls, both in Mass.
1,651,933. TIRE PATCHING APPLIANCE. L. Patton, Birmingham, Ala., assignor to Tube Joy Patch Co., a corp. of Alabama.
1,652,019. VULCANIZER. L. A. Laursen, Akron, O.
1,652,020. TIRE MOLD. L. A. Laursen, Akron, O.
1,652,149. SELVAGE TRIMMER. P. Pappano, assignor to The Goodyear Tire & Rubber Co., both of Akron, O.

Dominion of Canada

275,232 STOCK RACK. F. Spindle, Morrisville, Pa., U. S. A.
275,264 MACHINE FOR CUTTING TUBES, HOSE, etc. The Cameron Machine Co., assignee of J. A. Cameron, both of New York, N. Y., U. S. A.
275,286 BALE SEPARATOR. The Goodyear Tire & Rubber Co., assignee of F. Colley, both of Akron, Ohio, U. S. A.
275,340 AIR PRESSURE CONTROLLER. M. J. McAneny and J. L. Goree, assignees of one half of the interest, both of Denver, Colo., U. S. A.
276,076 SLITTING AND WINDING MACHINE. The Cameron Machine Co., assignee of J. A. Cameron, both of New York, N. Y., U. S. A.
276,077 SLITTING MACHINE. The Cameron Machine Co., New York, N. Y., assignee of R. Mc. Johnstone, Roselle Park, N. J., both in the U. S. A.
276,098 PRESS. The Goodyear Tire & Rubber Co., assignee of L. E. Dougherty, both of Akron, Ohio, U. S. A.
276,099 TUBE MILL. The Goodyear Tire & Rubber Co., assignee of C. H. Roth, both of Akron, Ohio, U. S. A.
276,100 BEAD BUILDING MACHINE. The Goodyear Tire & Rubber Co., assignee of G. G. Andrews, both of Akron, Ohio, U. S. A.
276,101 FABRIC SHAPING DEVICE. The Goodyear Tire & Rubber Co., assignee of E. F. Mass, both of Akron, Ohio, U. S. A.

United Kingdom

277,360† TIRE LINING MACHINE. Goodyear Tire & Rubber Co., 1144 East Market St., assignees of W. C. State, 132 North Adolph Ave., both of Akron, Ohio, U. S. A.
277,410 TUBE VULCANIZER. W. L. Fairchild, 250 West 57th St., New York, N. Y., U. S. A.
277,441 HEEL WASHER FEEDING MACHINE. E. B. Carter, Spring St., Everett, Boston, Mass., U. S. A.
277,674† TIRE VULCANIZER. Goodyear Tire & Rubber Co., 1144 East Market St., assignees of W. F. Wirgman, 580 Sumatra Ave., and M. E. Tedrow, 1842 Ford Ave, all of Akron, Ohio, U. S. A.
277,677† BAND SAW MACHINE. E. A. A. G. Caillaud, 8 Rue Bossuet, La Roche-sur-Yon, Vendee, France.
277,686† TIRE CHAFING STRIPS. Goodyear Tire & Rubber Co., 1144 East Market St., Akron, assignees of R. S. Kirk, Mogadore, both in Ohio, U. S. A.
277,709† HEEL WASHER FEEDING MACHINE. Goodyear Tire & Rubber Co., 1144 East Market St., assignees of L. Wetmore, Homer Hotel, both of Akron, Ohio, U. S. A.
277,851 TIRE VULCANIZING MOLD. A. E. White, 88 Chancery Lane, London. (Akron Standard Mold Co., 1624 Englewood Ave., Akron, Ohio, U. S. A.)
277,934† VULCANIZING MOLD. Kuhlke Co., Water St., assignees of O. J. Kuhlke, 166 Casterton Ave., both of Akron, Ohio, U. S. A.
278,064 VULCANIZER. Liverpool Rubber Co., Ltd., and F. Amende, Walton Works, Liverpool.

Germany

1,008,347. DEVICE FOR MOLDS. Max Muller, Maschinen-und Formenfabrik, Hannover-Hainholz.
1,008,885. TIRE VULCANIZER. Wilhelm v. d. Heyde, Stade i. Hann.
1,010,091. ELECTRIC VULCANIZER. Radisch & Co., Offenbach a. M.—Burgel.

Designs

Germany

452,639. CUTTING DEVICE. Firma H. Danger, Maurienstrasse 8-10, Hamburg 33.

Process Patents

United States

1,649,358 BEVELING THE ENDS OF INNER TUBES. C. E. Maynard, Northampton, assignor to The Fisk Rubber Co., Chicopee Falls, both in Mass.
1,649,734 BALL. F. T. Roberts, Upper Montclair and W. E. Roberts, Little Falls, assignors to Paramount Rubber Consolidated, Inc., Little Falls, both in New Jersey.
1,649,983 VENEER CORE. A. W. Schorger, Madison, Wis., assignor by mesne assignments, to C. F. Burgess Laboratories, Inc., Dover, Del.
1,650,266 COMPOUND FABRIC STRIP. E. R. Dexter, Goshen, N. Y.
1,651,751 FABRIC TREATING METHOD. S. M. Cadwell, Leonia, N. J., and O. H. Smith, New York, N. Y., assignors to Morgan & Wright, Detroit, Mich.
1,651,765 BRIEF CASE. E. J. Godfrey, Naugatuck, Conn., assignor to The Goodyear's Metallic Rubber Shoe Co., a corp. of Conn.
1,651,794 LAMINATED MATERIAL. G. F. Wikle, Milwaukee, Wis., assignor to The Fisk Rubber Co., Chicopee Falls, Mass.
1,651,801 TIRE CASING REPAIR PATCH. F. J. Benson, assignor to The Fisk Rubber Co., both of Chicopee Falls, Mass.
1,651,806 WEFTLESS CORD FABRIC. M. Castricum, Springfield, and E. C. Taylor, Longmeadow, assignors to The Fisk Rubber Co., Chicopee Falls, all in Mass.
1,652,088 TIRE. E. A. Brown, Springfield, O.

Dominion of Canada

275,439 COATING METHOD. R. M. Withycombe, Sydney, New South Wales, Australia.
276,102 BELT JOINT. The Goodyear Tire & Rubber Co., assignee of E. G. Kimmich, both of Akron, Ohio, U. S. A.

United Kingdom

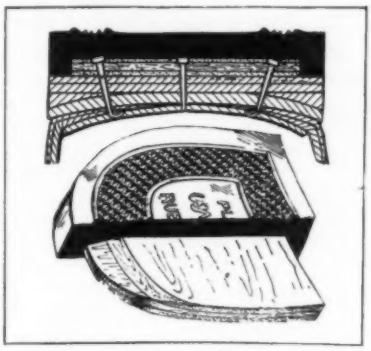
277,373† LATEX. K. D. P., Ltd., 28 Fenchurch St., London.
277,375† RUBBER COATING. K. D. P., Ltd., 28 Fenchurch St., London.
277,376† TREATING LATEX. K. D. P., Ltd., 28 Fenchurch St., London, assignees of E. A. Hauser, 7 Marienstrasse, Frankfort-on-Main, Germany.
277,719 TOE AND UPPER STIFFENERS. British United Shoe Mchy. Co., Ltd., R. H. Silvester, W. H. Bancroft, F. Ricks, M. G. Hill and T. H. Bristow, Union Works, Belgrave Rd., Leicester. (United Shoe Mchy. Corp., 205 Lincoln St., Boston, Mass., U. S. A.)
278,192 TIRE PATCH. R. D. Kamdin, 225 Commercial Rd., and J. Leadbitter-Smith, 51 Berkhamstead Ave., Wembley Hill, both in London.

†Not yet accepted.

New Goods and Specialties

New Type of Cushion Heel

The manufacturer claims that the Plyrubber heel gives to the shoes a new



USM Plyrubber

comfort, style and service. The attaching nails are sunk beneath the rubber, which closes tightly over them, eliminating cups or holes which carry dirt into the house. A thin nailing wafer of plywood, built of laminated sheets of selected wood, is embedded in the rubber of each heel and holds it firmly to the shoe. The shape of the attaching surface gives a suction fit and guarantees tight edges. The heel cannot spread out as it is built to keep its flat tread and preserve the lines of the shoe.—United Shoe Machinery Corp., Albany Building, Boston, Massachusetts.

Stone Protection Cushion

To prevent stones and other foreign matter from penetrating the cavity formed by twin tires fitted to the rear wheels of a vehicle, Società Italiana Pirelli, Milan, Italy, has invented a special stone protection cushion. This consists of a rubber ring covered at the sides and extreme ends with canvas, triangular in shape so that when fitted be-

Cushion for Twin Tires

tween the tires it fills the intermediate space. It is inserted without difficulty and retains its position between the tires

New Rubberized Fabric

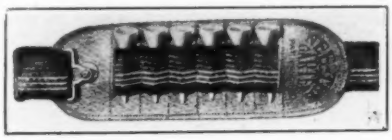
A product suitable for sport or rainwear, Archeroid, is a plaid lined material made from a blending of fine para rubber with a special quality of leather in fiber form, combined in the proper amounts with vulcanizing and coloring ingredients. It is made in all the popular colors and many new shades.—Archer Rubber Co., Milford, Massachusetts.

Individual Shock Absorbers

The bad condition of roads in Germany is responsible for the appearance of individual shock absorbers for automobile passengers which are called "Schwungfang" (momentum catcher). The device consists of two elastic rubber shoulder pieces and two pieces of belting, adjustable to length. It is fastened to the rear of the car with a few wood screws, swung over the shoulder of the wearer and fastened down in a small catch button fastener. Fitting loosely over the shoulder, it holds the passenger firmly in place on the upward rebound.—Phoenix Rubber Co., Harburg, Germany.

Golf Garter

A unique and interesting golf accessory has appeared which fills a long felt

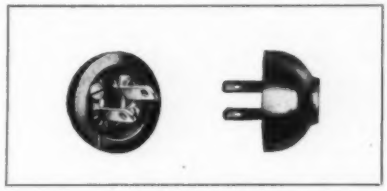


Nee-Tee

want of the golfer, who hitherto has experienced difficulty in carrying tees in such a way that he may have access to them without soiling his clothing. The Nee-Tee garter is made of specially woven strong elastic banding, a shield of pig skin forming six firm pockets which hold six Reddy tees. The garter is hidden by the plus fours of the male golfer, and the women find them a smart accessory to the sports costume, the combination of white elastic and red tees appealing to the feminine eye. Nee-Tee is also available in a variety of snappy colors as well as in white.—Charles A. Smith, 11 West 42nd street, New York, N. Y.

New Unbreakable Plug

A new type of unbreakable attachment plug made of rubber is announced by The Cutler-Hammer Manufacturing Co., 611 12th street, Milwaukee, Wisconsin. The plug is not only unbreakable but will not mar floor or furniture and should be of interest to factories, repair shops and other users of small motor driven tools as well as users of other electrical appliances. It is made of a high grade of rubber, very light in weight. The terminals are fastened in a bakelite strip firmly embedded in the rubber base, rivet and anchor construc-



Attachment Plug

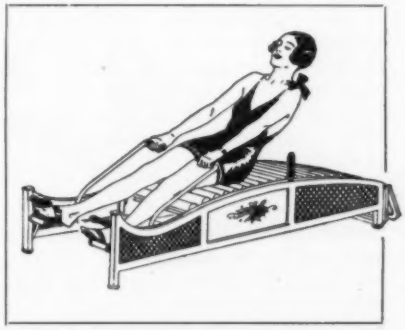
tion holding the terminals to the bakelite and keeping them from turning. Staked screws prevent loss and save time in wiring. When the plug is used with a rubber cord it is easy to apply a strain relief to relieve the strain between cord and plug. A small dab of ordinary rubber cement placed between the two, holds them firmly and permanently together.

Miniature Hi-Press Boots

Real rubber Hi-Press boots, only two and a half inches high, keep dollie's feet warm and dry, allowing her to accompany her youthful guardian regardless of weather conditions. The boots are made by The B. F. Goodrich Co., Akron, Ohio.

Exercising Device

A new and novel exercising device is manufactured by the Roll-A-Way Bed Corp., 225 West Ohio street, Chicago, Illinois, who claims that it will take off overweight healthfully and pleasantly. It embodies all the necessary exercises and body massages that make for health. A specially designed sponge rubber roll is mounted in ball bearings and so arranged in the machine as to give one a sense of unusual exhilaration when taking a workout on the machine. The construction is all steel with graceful lines and finished in enamel and wood to match any room or suite of furniture. Another unusual feature is the self-con-

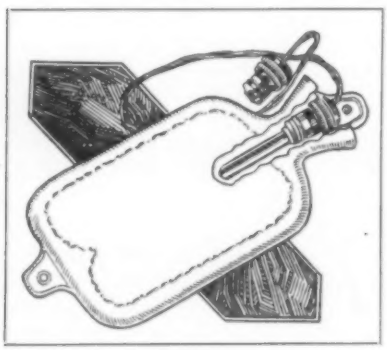


Reduce-A-Way Health-Roll

tained carriage which makes it possible to up-end Reduce-A-Way and roll it into a convenient closet or corner of a room when not in use.

To Keep Hot Water Bottle Warm

Hot water bottles are in frequent demand in every home and hospital and keeping them hot has been a problem to the trained as well as to the home nurse. Sta-Hot is a simple electric unit, threaded to fit any standard bag and will keep the water hot at a uniform temperature, consuming very little current. All the user does is to fill the bottle with water the desired warmth, screw in Sta-Hot and attach to any electric light socket or base plug.



Sta-Hot

The water will remain hot all night, all day, as long as desired. The device is equipped with a two piece socket and a nine foot cord.—The Clark Manufacturing Co., 427 North 13th street, Philadelphia, Pennsylvania.

Ritz Imperial

Adjustable Overshoe

The unparalleled rainfall of the autumn and winter has been a factor in developing the popularity of the overshoe which, however, has received its greatest impetus from the shrewdness of the manufacturers in recognizing and playing up to the appeal which trim smart footwear holds for women. One of the newest styles is the Ritz Imperial which is designed with an adjustable fastener both around the ankle and over the instep assuring a perfect fit to any size or type of foot. It is made up in black, brown, fawn and gray charmeen and in fancy wool tweeds of cobra, silver, champagne and diamond. The rubber sole and foxing combinations are of contrasting colors to blend with the fabric.—Firestone Footwear Co., Hudson, Massachusetts.

Elastic Cushion Garters

A simple and serviceable garter for rolled stockings, to be worn either above or below the knee, is made by The Toycraft Rubber Co., Ashland, Ohio, and called Sta-Tite. It is made of special cushion rubber, molded in one piece and will not collapse. Sta-Tite holds the stocking firmly with seams straight and cannot tear the most delicate fabric. The garter is ideal for women and children and is also in great demand with men golfers.

Puncture-Proof Inner Tube

An inner tube that is both puncture and trouble proof, according to the manufacturer, is made by The Rainbow Tire & Rubber Co., 187½ South High street, Columbus, Ohio. It goes into the case in two halves and works on the vacuum

and suction principle, the motorist riding on atmospheric pressure instead of compressed air. Greater resiliency than can be attained from air tubes is claimed, the casings are uniformly filled and any road shock equally distributed.

The Feminine Touch in Rubber

Novelties and Patents of Lady Edison

Although possessing no preliminary mechanical or scientific training whatever, Beulah Louise Henry, upon whom has been bestowed the title of Lady Edison because of the number and originality of her inventions, has demonstrated that her understanding of mechanical principles is sound. In spite of the discouragement and opposition which met her first efforts, through persistence and hard work she has reached, after seven years, a first place in her profession, and has already patented forty-six inventions, ranging from toys to mechanical devices, all of them commercially successful.

Lady Edison works principally in rubber and her most successful designs have been for the amusement of children, her family of rubber Spring-Limb dolls enjoying a popularity as great as that hardy favorite, the teddy bear. These dolls are made in a variety of figures and shapes and, as their name indicates, are made on springs which give them a resilience never achieved by the teddy. Dolls, clocks, sponges are only a few of the many toys which this ingenious young woman has patented.

Bachrach

Beulah Louise Henry

Miss Henry also contributed a large number of novelties for use on the beach: bags, parasols, caps and balls in almost endless variety. A cape, hat, parasol and bag designed by her in rubber, complete a toilet of which any modish young bather would be proud. A new and novel doll may be converted from a bag to a skirt to be worn over the bathing suit, this idea having been suggested by the recent prohibition in some states against walking about in bathing attire.

A clever and practical overshoe and stocking protector combined has recently been completed by Miss Henry, whose ideas and ingenuity are not limited to any particular field but are guided by her feeling of the needs and convenience of the public.

The Nineteen Twenty-Eight Tennis Line

Gutta Percha & Rubber "Mona"—a Typical Canadian Sport Oxford.

THE 1928 tennis line of the rubber footwear producers of the United States and Canada, now being shown to the trade, is replete with evidence of sound merchandising on the part of the producers. The useless multiplication of kinds of other years has been materially reduced, new low priced numbers make a strong bid for greater volume than has been possible in recent years, and new selling features have been introduced to make the line of merchandise more attractive.

Competition is more keen than ever before. The year has seen the extension of the Mishawaka companys' famous "Ball Band" line to include tennis; the Lambertville company's "Snag-Proof" line has been rejuvenated under its new management; the Phillips-Baker company, formerly the Bourne company of Providence, is concentrating on several attractive low priced numbers. Other American companies such as United States, Hood, Goodrich, Firestone, Converse, Cambridge, Beacon Falls, LaCrosse, Servus, and the Canadian companies such as Northern, Dominion, Gutta Percha, Kauffman, Independent, Columbus, and Miner, are all out with new numbers which carry a strong selling appeal.

Fleet Foot Sport Shoe with Cut-Out Rubber Sole

For several years retailers of tennis have been asking for a boy's trimmed tennis shoe which they could retail for $1. Late last spring the United States Rubber Co. put out such a shoe with an imitation black crepe sole, black imitation leather trim, with the Men's priced at 70 cents, Boys' at 67, and Youths' 63. Allowing the retailer a 33⅓ gross margin, he can sell the boys at $1 and get his profit. Other companies have followed the lead of the United States in this year's line, Cambridge with the "Clipper," Hood with the "Tiger," Goodrich with the "Buckeye," Converse with the "Century," LaCrosse with the "Albert," and Beacon Falls with the "Kayo." The shoe presents good value for the money being made with a lightweight enameling duck backed to sheeting, plain insole, rubber foxing and toecap, and a compounded outsole run on an imitation crepe roll. Several companies are using a black sole which permits the generous use of reclaim, while others have attempted to approximate the color of real crepe with a yellow or tan compound made with cheap oxides.

Some of the companies such as Mishawaka and Firestone are not offering this shoe in their catalogs, indicating for the present that they are not trying to compete for this low-priced business. The manufacturer's margin on this item is so close in view of present cotton prices that all the economies of mass and continuous production will have to be employed to show a good profit.

Stepping out of the class of strictly price merchandise we come to a more sturdy line priced at $1.35 for men's, and carrying the newly developed cut-out sole, originated by Cambridge last year. The cut-out sole is a new method of construction which enables the producers to furnish what is in appearance and effect a molded suction sole at much less money. Instead of semi-curing a sole in a mold, the stock is run in plain sheet, and the heel and tap design are cut out by a multiple cutting die on the clicker. This stock is then laminated to a thicker plain sheet, the perforations forming suction cups in the completed sole.

Concerns carrying this type of shoe are Cambridge with the original "Bearcat," Beacon Falls with the "Rodeo," Ball Band with the "Cody," Hood with the "Husky," Converse with the "Scouter," Goodrich with the "Pontiac," LaCrosse with the "Athletic" and Firestone with the "Conqueror." But it remained for our Canadian friends to honor the nation's hero of the air as Columbus Rubber Co., names their shoe of this type, the "Lindy." Dominion has the "Callboy" of the

Hood's "Hoopster" with Leather Top and Stub Toe Guards

Fleet Foot line. To meet the demand for a shoe in this price class with special features, Beacon Falls offers the "Cleeto," made with an extra weight sole, carrying cleets instead of the cut out pattern. This is said to possess all the non-skid qualities of the cut out shoes with the advantage that the sole will track less dirt. Converse has a similar type shoe called the "Big 9," thus reviving a name which was a pioneer in high quality tennis for many years. The Beacon shoe is priced at $1.50 for men's.

A slight trend is seen toward novelty tennis, the idea doubtless originating from the novelty gaiter craze. The United States Rubber Co. offered several oxfords made from tweed pattern cloth last summer and Hood, and several of the Canadian companies are offering shoes of this type. The majority of companies have not followed this lead as yet, doubtless preferring to wait to see if there is a real demand before putting them in their lines.

The Canadian companies go in for dress oxfords more than the companies here, particularly Gutta Percha. These shoes follow more or less the styles of the fancy oxfords and pumps put out by the leather shoe industry. Hood has a nice line of leather strap pumps in colors while Kauffman seems to lead in this field among the Canadian companies.

The basketball line shows less change than the other lines, most improvements being more in the nature of refinements. The requirements of this sport are exacting, and the appeal of the shoe is found more in its wearing qualities, fit, and traction of the sole rather than in advertising features. Converse stands by its leaders, the "All Star" and "Hickory," priced the same as last year at $2.90 wholesale. The Hood "Greyhound" is quoted at the same figure, but Hood has also introduced the same shoe with a leather upper at $3.50 called the "Hoopster," which has a stub-guard feature at the toe. Firestone has added the Armstrong cork insole to the "Thorogrip" priced at $2.75. Cambridge offers the "Radio," a new basketball number, also priced at $2.90 and carrying the Armstrong "Korxole" insole. Other basketball numbers in approximately this price class are the Ball Band "Klinger" and "Cadillac," Northern "Peerless," Dominion "Grid," United States "Comet," Gutta Percha "Forward," Kauffman "Basket Ball," Goodrich, "Princeton," La Crosse "Eagle," and Beacon Falls "Grip Well."

In the $2 class there seems to be no concerted type of styling this year, each company having its own individual shoes with various features priced all the way from $1.75 to $2.25. The Beacon Falls "Grip Sure," the Converse "Bronco," Hood "Caddy" and Lambertville "Snag Flash," are good examples of this specializing.

Leather shoe prices have advanced, particularly low priced work shoes, which should mean a comeback for the heavy canvas heel work shoe for farmers and outdoor workers. Mishawaka carries the most complete Ball Band line with the welt leather shoe and carbon black sole called the "Elk" priced at $5.50, and four varieties of rubber sole work shoes, the "Utility," "Crafter," "Artisan" and "Bengal" priced from $2.25 to $1.60. Hood has the "Wurkshu" and the "Builder" in this line.

With the swing into tennis production awaiting the cessation of the present active demand for winter footwear, rubber shoe manufacturers should enjoy a good volume of business on the 1928 tennis line.

NATIONAL POWER SHOW

The Sixth National Exposition of Power and Mechanical Engineering was held at Grand Central Palace, New York, N. Y., December 5 to 10, 1927. Among the exhibitors were: Barco Manufacturing Co., Chicago, Ill.; Bristol Co., Waterbury, Conn.; Carrier Engineering Co., Newark, N. J.; DeLaval Steam Turbine Co., Trenton, N. J.; Falk Corp., Milwaukee, Wis.; General Electric Co., Schenectady, N. Y.; Pittsburgh Valve Foundry & Construction Co., Pittsburgh, Pa.; Yarnall-Waring Co., Philadelphia, Pa. The show was well attended and offered much information to power users.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

Number	Inquiry
1047	Manufacturers of rubber gloves.
1048	Concerns making gutta percha tissue.
1049	Golf ball manufacturers.
1050	Manufacturers of footwear repair vulcanizers.
1051	Duroprene varnish.
1052	Source of supply of resin extracted from rubber or balata.
1053	Material known as Textan.
1054	Manufacturers of rubber suction cups.
1055	Manufacturers of sponge rubber.

Foreign Trade Information

For further information concerning the inquiries listed below address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House New York, N. Y.

Number	Commodity	City and Country	Purchase or Agency
28,200	Hospital and druggists' rubber goods	Bombay, India	Both
28,241	Tires and tubes	Manchester, England	Purchase
28,267	Rubber thread	Barmen, Germany	Agency
28,268	Rubberized cloth	Hamburg, Germany	Purchase
28,269	Rubber specialty goods	Vienna, Austria	Agency
28,270	Machine belting	Riga, Latvia	Agency
28,276	Old tubes and casings	Barcelona, Spain	Purchase
28,277	Tires	Saloniki, Greece	Purchase
28,348	Automobile, truck and motorcycle tires	Hamburg, Germany	Both
28,356	Tires and repair kits	Paris, France	Agency
28,389	Rubberized cloth	Mexico City, Mexico	Agency
28,441	Rubber	Hamburg, Germany	Agency
28,467	Composition packings for radiator valves	Toronto, Canada	Agency
28,469	Rubber shoes	Prague, Czechoslovakia	Agency
28,507	Air hose, 3-inch, 600 feet	Durango, Mexico	Purchase
28,552	Fire hose	Montevideo, Uruguay	Agency
28,553	Composition soles	Stockholm, Sweden	Agency
28,554	Boots and shoes	Stockholm, Sweden	Agency
28,591	Surgical goods	Sydney, Australia	Agency
28,595	Tires	Vienna, Austria	Both
28,626	Caps and aprons	Sydney, Australia	Agency

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.

Number	Special Circulars
1700	French Tire Exports, First Nine Months, 1927.
1701	French Footwear Exports, First Nine Months, 1927.
1702	Tire Exports from United States, Canada, United Kingdom, France, First Nine Months, 1927.
1703	New Zealand Rubber Goods Imports, 1925 and 1926.
1704	British South Africa Imports of Rubber Goods.
1705	Belgian Tire Exports First Nine Months 1927.
1707	German Tire Exports First Nine Months 1927.
1712	Tire Exports—Turkey, Italy.
1714	Rubber Sundries and Specialties.
1719	Canadian Tire Exports During October.
1722	Tire Exports.
1724	Rubber Footwear Exports.
1725	British Exports of Casings During October.
1726	British Exports of Footwear During October.
1727	Tire Exports and Imports.
1729	The German Tire Industry in 1926.
1731	Italian Tire Exports First Nine Months, 1927.
1732	French Rubber Tire Exports During October, 1927.
1733	French Footwear Exports, October, 1927.
1734	United States Crude Rubber Imports November, 1927.
1736	Mechanical Rubber Goods Exports.
1737	Crude Rubber.

CANADIAN EXPORTS OF RUBBER BOOTS AND SHOES TO FOREIGN countries for the first nine months of 1927 reached 698,108 pairs, value $1,096,683, and canvas rubber soled footwear totaled 4,480,253 pairs, value $3,129,755. For the first nine months of 1926 the total on rubber boots and shoes was 1,142,019 pairs, valued at $1,907,849, with canvas rubber soled shoes reaching 3,946,771 pairs, value $3,062,120.

Editor's Book Table

"A. S. T. M. Standards, 1927" Part I Metals, Part II Non-Metals. American Society for Testing Materials, 1315 Spruce street, Philadelphia, Pennsylvania. Cloth, 6 by 9 inches, Part I, 878 pp., Part II, 1,006 pp. Illustrated, indexed.

These volumes constitute the triennial book of A. S. T. M. standards. Part I contain 147 standards and Part II, 196 standards. These standards are invaluable for reference in the work of engineers and chemists in every branch of industry. Part II on non-metals includes specifications of great importance in the rubber industry on such subjects as insulating materials, rubber products, textile materials, etc. Each part has two tables of contents, one listing the standards by their sequence in the volume and the other by their numerical order. This plan greatly facilitates reference to the specifications.

"Rubber Producing Companies—1927." Published by Financial Times, Ltd., 72, Coleman St. London, E. C. 2, England. Boards, 710 pp. 5½ by 8½ inches.

This annual is compiled by the Mincing Lane Tea & Rubber Share Brokers' Association. The particulars supplied concern practically every British rubber company and embrace directorate, estate manager, capital, acreage, tenure, when planted, purchase price, crop yields and net price per pound for the last seven years, synopsis of accounts for the last seven years, investments, forward sales, estimates, etc., and also all recent reorganizations and amalgamations.

"Annual Survey of American Chemistry.". Volume II, July 1, 1926 to July 1, 1927. Edited by Clarence J. West, director, Research Information Service, National Research Council, under the auspices of the Division of Chemistry and Chemical Technology, William J. Hale, chairman. The Chemical Catalog Co., 419 Fourth avenue, New York, N. Y. 1927. Cloth, 415 pp. 5¼ by 8½ inches. Indexed.

Over 50 eminent American chemists have in this volume taken stock of the progress of chemical research in 49 separate branches of chemical technology. The chemistry of rubber is reviewed by William C. Geer, who concludes with the observations "that the universities do but little work in the rubber field and that the industries do not publish nearly the volume of data that could be reported, judging from the wealth of research that is known to be under way."

"The Testing of Rubber Goods." Circular No. 38 of the Bureau of Standards, Fifth Edition, September 28, 1927. Government Printing Office, Washington, D. C. Paper, 83 pp., 7 by 10 inches. Illustrated. Bibliography.

This booklet describes the methods used at the Bureau of Standards in testing rubber goods. The physical tests commonly employed are described in detail and the machines used for this purpose, many of which were designed at the Bureau, are illustrated and described. Data are given showing the effect of different conditions on the tensile properties of rubber. Special attention is given to the effect of temperature on the physical tests. The circular also contains a brief outline of the methods of collecting crude rubber and the processes used in the manufacture of various rubber articles.

"Pyroxylin Enamels and Lacquers." By Samuel P. Wilson. Second Edition, Enlarged. New York, D. Van Nostrand Co., Inc., 8 Warren street, 1927. Cloth, 253 pp. 6 by 9 inches. Illustrated. Appendix, bibliography, indexed.

This volume has much interest for the rubber chemist and technologist because of its authoritative discussion of the ingredients, solvents and manufacturing methods employed. Many of the pigments described are employed also in rubber compounding, although many are not. The book contains many practical formulas for lacquers and enamels of various colors, also a chapter on miscellaneous analytical methods.

"Use and Care of Automobile Tires." Circular No. 341 of the Bureau of Standards, September 29, 1927. Government Printing Office, Washington, D. C. Paper, 27 pp., 7 by 10. Illustrated.

This circular presents useful information relative to tires in general and points out certain precautions, the observance of which is essential to the proper use and care of tires. Brief reference is made to the essential characteristics of fabric tires, cord tires (high pressure and balloon), inner tubes, cushion tires and solid tires. Detailed instructions are given for mounting pneumatic tires. Recommended loads and inflation pressures for pneumatic and solid tires are tabulated, and the general subject is discussed with special reference to the injurious effects of overloading and underinflation.

The various types of injury to tires and their causes are illustrated and described and instructions given for the use and care of tires in general.

Recent Rubber Articles

THE EFFECT OF NON-UNIFORMITY AND PARTICLE SHAPE OF "Average Particle Size."—Henry Green, *J. Franklin Inst.* Dec. 1927, pp. 713-729.

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VULCANIZING FOOTWEAR IN COMPRESSED AIR. Anonymous. *I. R. Jour.*, Nov. 12, 1927, pp. 900-901. Illustrated.

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NEW DERIVATIVES OF RUBBER.—G. Bruni and E. Geiger, *Rubber Age*, N. Y., Nov. 25, 1928, pp. 187-188.

RESULTS OF SYSTEMATIC SOIL CONSERVATION AS APPLIED TO HEVEA.—J. C. Treadwell, *Rubber Age*, N. Y., Nov. 25, 1927, pp. 190-193. Illustrated.

RECLAIMED RUBBER COMPOUNDING. Three-part serial.—D. F. Cranor, *I. R. & Tire Rev.*, Oct., 1927, p. 20; Nov., 1927, p. 30; Dec., 1927, p. 26.

ELECTRODEPOSITION OF RUBBER.—S. E. Sheppard, *Am. Electrochem. Soc.*, Sept., 1927, 35 pp.

MICROGRAPHIC STUDIES OF VULCANIZED RUBBER, SHOWING THE EVOLUTION OF THE FREE SULPHUR.—Regnaud, *Chim. et Ind.*, 1927, 18, pp. 93-96.

DETERMINATION OF SULPHUR IN MANUFACTURED RUBBER.—L. Graffe, *Le Caout.*, 1927, 24 pp. 13,722-13,723.

RUBBER AND GUTTA PERCHA. I. The Condensation of Rubber Dibromide and of Gutta Percha Dibromide with Phenols and with Phenolic Ethers.—E. Geiger, *Helvetica Chim. Acta*, 10, pp. 530-538 (1927).

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REMARKS ON ANTI-OXIDANTS AND RUBBER.—Reply to Bernstein.—C. Moureau and C. Dufrasse.—*Rev. Gén. Caout.*, 1927, No. 34, pp. 3-4.

BALATA.—M. Tillinac, *Rev. Gén. Caout.*, 1927, No. 34, pp. 37-40.

VULCANIZATION AND DEVULCANIZATION OF RUBBER.—Paul Bary, *Rev. Gén. Caout.*, No. 34, pp. 10-12.

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MODERN PROBLEMS OF RUBBER PLANTING IN EASTERN ASIA.—E. A. Hauser, *Kaut.*, Nov. 1927, pp. 329-332.

RUBBER MIXINGS.—W. B. Wiegand, *Kaut.*, Nov., 1927, pp. 334-337.

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THE MILDEW DISEASE IN EAST JAVA. Results of the Mildew Inquiry made in 1927.—G. A. Reydon. *Archief.*, Oct., 1927, pp. 435-460, tables, graphs, bibliography. English Summary, pp. 461-464.

MANURIAL EXPERIMENTS ON HEVEA.—J. Grantham, *Archief.*, Oct., 1927, English, pp. 465-471, tables. Dutch, 472-476.

THE ECONOMY OF SODIUM SILICO-FLUORIDE AS A COAGULANT. II.—H. H. van Harpen, *Archief.*, Oct., 1927, pp. 477-486, tables. English version, pp. 487-496.

COAGULATION PHENOMENA IN HEVEA LATEX, V. Alcohol, Alum and Sodium Chloride.—O. de Vries and N. Beumee-Nieuwland, *Archief.*, Nov., 1927, pp. 497-517, tables. English version, pp. 518-526. Part VI. Additional Observations on B-fluid. Nov., 1927, pp. 127-533. Tables. English version, pp. 534-536.

LATEX AS MARKETABLE GRADE OF RUBBER. H. N. Blommendaal and N. H. van Harpen.—*Archief.*, Nov. 1927, pp. 537-546. Table, illustration. English version, pp. 547-555.

VULCANIZATION ACCELERATORS. Review of patent literature of recnt years.—Dr. Aladin. *Gummi-Zeit.*, Nov. 4, 1927, pp. 246-247. Supplement to p. 2,978, 41.

THE SOLUBILITY OF VULKAN COLORS IN RUBBER.—Rudolf Ditmar, *Gummi-Zeit.*, Nov. 11, 1927, pp. 306-307.

METHODS OF OBTAINING PURE RUBBER HYDRO-CARBON.—Rudolf Pummerer and Herman Miedel, *Ber. der Deutsch. Chem. Ges.* 60, p. 2,148, 1927.

THE PRODUCTION OF PURE RUBBER FROM LATEX BY MEANS OF ALKALI, AND ITS DECOMPOSITION INTO SOL AND GEL RUBBERS.—Rudolf Pummerer and Hans Pahl, *Ber. der Deutsch. Chem. Ges.*, 60, p. 2,152, 1927.

THE AGING OF RUBBER.—I. F. Jacobs, *Le Caout.*, Nov. 15, 1927, pp. 13,762-13,765.

CONTRIBUTIONS TO THE COLLOID CHEMISTRY OF RUBBER LATICES. On the determination of the actual and potential alkalinity of latex of *Hevea brasiliensis*.—E. A. Hauser and P. Scholz, *Kaut.*, Oct., 1927, pp. 304-305.

SOME TAPPING TESTS ON HEVEA BRASILIENSIS.—E. A. Hauser, *Kaut., Oct.*, 1927, pp. 306-307.

THE PLANIMETRICAL DETERMINATION OF THE BREAKING ENERGY OF RUBBER AND THE TENSILE STRENGTH PRODUCT.—Lothar Hock, *Kaut.*, Oct., 1927, pp. 314-316.

CALENDAR

JANUARY 7-14

New York Automobile Show, Grand Central Palace, New York, N. Y.

MONDAY, JANUARY 9

Rubber Association of America, Inc., meeting and luncheon, 10.00 a. m., dinner 7:00 p. m., Commodore Hotel, New York, N. Y.

TUESDAY, JANUARY 10

National Automobile Chamber of Commerce, banquet, Commodore Hotel, New York, N. Y.

WEDNESDAY, JANUARY 11

Motor and Accessory Manufacturers' Association, annual meeting, 2:30 p. m., banquet 7:00 p. m., Hotel Astor, New York, N. Y.

THURSDAY, JANUARY 12

Society of Automotive Engineers, dinner, Hotel Astor, New York, N. Y.

New Trade Publications

"Allen-Williams Rapido and other High Speed Tubing Machines." This booklet of 16 pages issued by The Williams Foundry & Machine Co., Akron, O., contains specifications and illustrations of the Rapido line of high speed tubing machines developed to meet the demand for increased capacity and efficiency. These machines comprise numerous sizes from 2 to 10 inch capacity. Die heads for tire treads, inner tubes and insulation provided for use with the Rapido line are also described.

"Engineering Achievements of the Westinghouse Electric & Manufacturing Co. for the Year 1927" is this year issued in forty-two loose pages, with two additional pages devoted to a photographic index. The subjects covered include steam power, generators, transformers, circuit breakers, transportation, the industries, etc.

"When Industry Says Stop!" is the arresting title of a booklet on magnetic brakes issued by The Cutler-Hammer Manufacturing Company, Milwaukee, Wisconsin. The book explains in detail the construction and operation of all types of magnet brakes —both for alternating and direct current. In addition it contains tables showing the exact size and type of brake for use with the various types of mill and crane motors.

"Schrader Loose-Leaf Tire Manufacturer's Catalog." This completely revised catalog issued by A. Schrader's Son, Brooklyn, N. Y., provides tire manufacturers with detailed information regarding Schrader tire valves, parts, accessories and service equipment for factory use. The pages are numbered, dated and projecting printed index tabs enable one to refer quickly to any of the Schrader products by name or number. The book is attractively and durably bound in flexible covers.

Legal

Trade Marks

Frank James Davis (trading as The Ustikon Co.) and another *v.* The Sussex Rubber Co., Ltd., in the High Court of Justice-Chancery Division before Justice Russell, and in the Court of Appeal before the Master of the Rolls, Lord Justice Sargant and Lord Justice Lawrence.

Plaintiff claimed the use since 1919 of the word Ustikon as a trade mark in respect of rubber soles for boots and shoes and in the years 1924 and 1925, respectively, had obtained registration of the words Davis Ustikon and Ustikon. Davis commenced an action to restrain the Sussex company from infringing and passing off by the use of the word Justickon.

Judgment given to plaintiffs. The defendant appealed and the appeal also was dismissed.—*Reports of Patent, Design and Trade Mark Cases*, Vol. XLIV, No. 13, p. 412.

Patents

1,411,645, Breyer, Croll & Farber, manufacture of lithopone; 1,411,646, Singmaster & Breyer, same; 1,411,648, Singmaster, Breyer & Farber, same; 1,446,637, Breyer & Farber, same, D. C. Del. (Wilmington), Doc. E 620, The New Jersey Zinc Co. *v.* Krebs Pigment & Chemical Co. Dismissed Sept. 13, 1927.—*Official Gazette*, Vol. 364, p. 253.

1,279,936, Re. 15,755, R. H. Taylor, inflated ball, appeal filed Oct. 7, 1927, 1st Cir., Doc. 2177, The Seamless Rubber Co., Inc., *v.* Stall & Dean Mfg. Co., Inc.—*Official Gazette*, Vol. 365, p. 6.

CANADIAN RUBBER BELTING EXPORTS TOTALED DURING THE FIRST nine months of 1927, 849,479 pounds, value $350,203, as compared to 807,092 pounds, value $463,573, for the corresponding period of 1926. The exports of rubber hose for the first nine months of 1927 was valued at $183,569, the value for the same period in 1926 was $191,079.

Obituary

Former President of U. S. Tire Co.

James Newton Gunn, who died November 26 in his sixtieth year, rendered conspicuous service to the rubber industry, especially as president of the United States Tire Co. and a director of the United States Rubber Co. from 1915 to 1923.

James Newton Gunn

Mr. Gunn was born in Springfield, Ohio, and graduated from Springfield High School, but continued studying under private tutors in languages, mathematics, and engineering. He early became connected with the Library Bureau, Boston, Massachusetts, where he improved the card-index system and invented the tab-card system and the vertical file. After several years abroad developing the company's foreign business, he returned to form the industrial engineering firm of Gunn, Richards & Co., and was a consultant for many well known companies.

Noting his exceptional ability as an organizer, the Studebaker Corp. summoned Mr. Gunn in 1911 to act as its general manager in coordinating its motor car activities. Further appreciation was shown in 1915 when he was chosen by the United States Rubber Co. as one of its vice presidents and a director and also as president of the United States Tire Co., he retaining those positions until he resigned eight years later on account of failing health.

Mr. Gunn had been a director of the Rubber Association of America and chairman of its budget and other committees. During the World War he represented the association on the War Industries Board; and he also led in an effort to relieve the overtaxed railroads by inducing owners of passenger and commercial automobiles to use them more for short hauls. Having helped to establish the business school at Harvard, Mr. Gunn, at the request of President Eliot, became one of the first lecturers, and served on the administrative board for several years. He also lectured on commercial subjects at Columbia University and Massachusetts Institute of Technology.

Elected president in 1921 of the Lincoln Highway Association, of which he had been one of the founders, he did much to promote road improvement throughout the country. Mr. Gunn served as receiver for the Hodgman Rubber Co. in 1924-25; and as a member of the engineering staff of Lockwood, Greene & Co., had given many corporations the benefit of his ripe experience.

In addition to his ability as inventor, organizer, and administrator, Mr. Gunn was conspicuously successful in a social way. Of fine presence, an excellent raconteur, and possessed of a keen yet kindly wit, he was a popular and valued member of many clubs. Among the latter were the Chicago, Detroit, Detroit Athletic, the Essex Country Club in Manchester, the Lotos, Engineers, and Sleepy Hollow Clubs in New York.

Mr. Gunn leaves a widow, who was Miss Mabel Scott, three daughters, and a sister. The funeral took place November 29, services being held in the chantry of St. Thomas' Church, Fifth avenue and 53rd street, New York. Burial was private.

Production Superintendent of National India Rubber Co.

George Edwin Shaw, production superintendent of the wire division of the National India Rubber Co., Bristol, Connecticut, died December 4 while on a fishing trip. He had complained of feeling seasick and was rushed to shore and taken to the Newport City Hospital where physicians pronounced him dead as a result of a heart attack.

Mr. Shaw was born in North Dighton, January 3, 1887, attended a commercial college in Fall River and moved to Bristol twenty-two years ago when he became connected with the National India Rubber Co. He is survived by his wife, Mrs. Mary A. Shaw, two daughters, Magdalen and Mary Shaw and one son, George Shaw, Jr.

Funeral services were held on December 7 and many beautiful floral offerings were received from officials and coworkers of the National company, New York offices of the United States Rubber Co. and many other friends and relations.

Founder of General T. & R.

Michael O'Neil, chairman of the board of the General Tire & Rubber Co., and a leader in Akron's business, industrial and civic life, died after a brief illness of influenza at his home on December 16. He was 77 years old.

Born in Cork county, Ireland, December 12, 1850, Mr. O'Neil came to this country with his parents as a poor immigrant boy. For three years before

Michael O'Neil

he came to Akron he conducted a mercantile business at Lancaster, Ohio. Fifty years ago he and I. J. Dyas founded the M. O'Neil Co. department store in Akron. The store passed to his control in 1890 upon the death of his partner. In 1912 the store, which had grown to be one of the leading department stores in Ohio, was sold to the May Co.

Mr. O'Neil and his son, William, incorporated the General Tire & Rubber Co. in 1915, and today the company's assets are approximately $9,000,000, with a world wide reputation in the tire industry for quality products. For ten years Michael O'Neil served as president of the tire corporation. Two years ago he resigned to become chairman of the board, his son, William, succeeding him as president.

Besides the General company and the O'Neil store, another monument to Mr. O'Neil's leadership in the community is the new St. Thomas Hospital. It was his personal contribution to the hospital fund that made possible the building of the $800,000 structure by popular subscription.

In recent years Mr. O'Neil served as vice president of the Akron Chamber of Commerce, and lately as a member of the Union Depot and Grade Separation Committee of that organization. He served as a member of the Akron Charter Committee, which drafted a new

form of government for the city. He was one of the oldest and most active members of St. Vincent's Catholic Church and the Knights of Columbus.

According to terms of Mr. O'Neil's will, filed in the probate court, Mrs. Patience O'Neil, his widow, is made sole heir of the estate, which is valued at $2,200,000.

A Decade with the Miner R. Co.

Samuel G. Best died in his 79th year last month after several years' illness. He had been with the Miner Rubber Co., Ltd., Granby, Quebec, for nearly a decade prior to his retirement some four years ago.

Founder of Columbus R. Co.

Joseph O. Gravel died in Montreal the early part of December at the advanced age of 88 years. He entered the Canadian Rubber Co. at the age of 24, as secretary-treasurer, and held this position until 1901, when he resigned. Mr. Gravel was the founder of the Columbus Rubber Co., Montreal, Ltd., and was associated with various industrial business enterprises at the time of his decease.

Manager Gregory T. & R. Co.

R. E. Jamieson, managing director of the Gregory Tire & Rubber 1926, Ltd., Port Coquitlam, B. C., died suddenly, following an attack of acute gastritis, on board the liner Aorangi en route to Sydney, N. S. W., and was buried at sea. Born at Bond Head, Ontario, March 27, 1867, he was educated at Bradford High School and the University of Toronto. For a short time he taught school, after which he went into the shoe business. Later he became associated with the Canadian Consolidated Rubber Co., Ltd., occupying successively the position of traveler, branch manager, division manager and sales manager. He went to the Pacific Coast several years ago and at the time of his death was vice-chairman of the British Columbia Division of the Canadian Manufacturers' Association. The deceased sailed from Vancouver on November 16 on a business trip to Australia and New Zealand.

Muehlstein's Boston Manager

Frank W. Sharts, Boston manager and New England representative of H. Muehlstein, & Co., Inc., died at his home in Belmont, Massachusetts, December 18, 1927, as the result of a stroke.

Frank W. Sharts

Mr. Sharts was a New Yorker, born in 1882 and educated in the public schools of that city. His early business training was obtained as an accountant but for the past 17 years he was identified with the sales organization of the Muehlstein company, twelve years of this period he served at the home office in New York and for the past five years was in charge of the company's Boston branch.

Mr. Sharts is survived by his wife, Katherine (Hartley) Sharts and four children, Muriel, Doris, Frank W. Jr., and Howard. His genial personality and business ability brought to him the high esteem and friendship of the entire rubber trade of the New England territory.

Edouard Bunge

The death is announced of M. Edouard Bunge, president of the firm of Bunge & Co. of Antwerp. Born at Antwerp on October 6, 1851, he joined the firm in 1875 and took over the lead in 1884 when his father, Charles Gustave Bunge, died. The firm, as is well-known, has extensive interests in crude rubber.

NEW FACTORY FOR CUBA

A new factory has been formed in Havana, Cuba, for the manufacture of inner tubes, soles, heels and mechanical rubber goods. The new company will be known as Alberto Gonzales & Co., "La Industrial Gomera," 324 Manzana de Gomez. Oscar Borrell is factory manager and superintendent and the controlling interest in the enterprise is held by Alberto Gonzales Shelton.

FOREIGN CLINCHERS AND METRIC SIZES

Foreign countries cling to the clincher type tire with greater tenacity than this country, according to *Miller News Service*. Even balloon tires, in several sizes for foreign made cars, are made in this country for clincher rims. Clincher balloons are unknown in the United States except on imported cars.

Also, American manufacturers build tires for foreign use in metric sizes. In several European countries, tires are measured by millimeters. However, engineers believe that the constantly increasing proportion of American made cars sold in foreign lands will eventually eliminate clincher tires and cause the adoption of standard American sizes.

MANUFACTURING CONTRACTS HAVE BEEN closed whereby the coldsawing products of the Higley Machine Co., of Norwalk, Conn., and New York, N. Y., will be manufactured by the Black Rock Manufacturing Co., Bridgeport, Conn.

THE ANNUAL DINNER OF THE STAFF OF EDWARD LYMAN BILL, INC., PUBLISHER OF FOURTEEN TRADE JOURNALS, INCLUDING INDIA RUBBER WORLD, WAS HELD IN THE EAST BALL ROOM OF THE HOTEL COMMODORE, NEW YORK, N. Y., DECEMBER 16, 1927.

Financial and Corporate News

New Incorporations

AUBURN-ROCHESTER CORP., December 6 (New York), $75,000. D. F. Laidlaw, 245 Hazelwood Terrace, J. W. Gillis, 42 Clover St., both in Rochester; R. R. Clevenger, 147 Pardee Rd., Irondequoit, both in N. Y. Principal office, Rochester, N. Y. To manufacture tires.

R. C. BELT CO., INC., November 29 (New York), $60,000. H. R. Lownsbery, 514 Broadway, Elmira, R. Harrison, 31 Townsend Ave., Corning, both in N. Y., T. Brooks, Blossburg, Pa. Principal office, Elmira, N. Y. To manufacture rubberized cord and belting.

BOTANICAL PRODUCTS CO., October 14 (Massachusetts), capital stock 250 shares pfd. par value $100 and 250 shares com. no par value. E. A. Crockett, president, 20 Prescott St., H. V. Flaherty, treasurer, 47 Tremont St., both of Cambridge; M. L. Costello, director, 34 Marathon St., Arlington, both in Mass. Principal office, Cambridge, Mass. To deal in vulcanized latex and other rubber goods.

DECORATIVE RUBBER FLOORING CO., INC., December 1 (New York), $30,000. C. W. Duryea and P. F. Cook, both of 522 Fifth Ave., New York; H. R. Schmidt, 37 Fuller Place, Brooklyn, both in N. Y. Principal office, Manhattan. To manufacture rubber flooring.

DOWNTOWN TIRE SERVICE CO., INC., November 22 (New York), $50,000. E. L. Kost and W. P. Fraley, both of 70 West End Ave., New York City; H. G. Mead, 231 Ridge Rd., Rutherford, N. J. Principal office, Manhattan. To manufacture tires.

JACK'S TIRE SHOP, INC., November 15 (New York), $10,000. T. Smith, 3304 Broadway, D. H. Lehman, 291 Broadway, R. D. Marte, 515 West 157th St., all of New York, N. Y. Principal office, Manhattan. To manufacture tires.

KOLLER-STURTZ TIRE CORP., December 1 (New York), $5,000. I. and H. Koller, 763 Jennings St., M. Reisner, 1289 Hoe Ave., all of Bronx, N. Y. Principal office, Bronx, N. Y. To manufacture tires.

D. M. MELTZER, INC., December 13 (New York), capital stock 200 shares no par value. D. M. Meltzer, 409 S. State St., S. Meltzer, 1007 McBride St., A. Branse, 120 Stadium Place, all of Syracuse, N. Y. Principal office, Syracuse, N. Y. To deal in rubber clothing.

NORTHSTORE TIRE CORP., December 2 (New York), $35,000. A. S. Ritter, 14 Carlton Place, T. Spica, 141 Linden St., both of Flushing; N. Giacoia, 5422 69th Place, Maspeth, both of Long Island, N. Y. Principal office, Flushing, L. I., N. Y. To manufacture tires.

RAVENO RUBBER CO., INC., November 25 (New York), $10,000. J. A. Duval; E. A. Weiller and J. F. Dowling, all of 40 West 23rd St., New York, N. Y. Principal office, New York county. To manufacture rubberized goods.

SEATRADE EXCHANGE CORP., November 28 (New York), capital stock 100 shares no par value, 100 shares par value $100. S. B. Quel; G. Helfand and I. Eleff, all of 420 Lexington Ave., New York, N. Y. To manufacture, export and import rubber.

SHOCK ABSORBING WHEEL CORP. OF AMERICA, November 23 (New York), capital stock 41,000 shares par value $10. C. Geisenheimer, 894 Riverside Drive and M. Geisenheimer, 1134 West Farms Rd., both of New York City; H. Yesskin, 246 Nye Ave., Newark, N. J. Principal office, Manhattan. To manufacture tires.

VULTEX CORP. OF AMERICA, October 17 (Massachusetts), capital stock 10,000 shares. Class A par value $100. 101 shares Class B no par value. H. MacPherson, president, 55 Bradford Rd., Watertown; W. MacPherson, treasurer, 151 Brattle St., Cambridge; F. H. Barry, clerk, 57 Bigelow St., Brighton; C. E. Gundersen, 36 Marshall St., Winthrop, all in Mass. Principal office, Cambridge, Mass. To deal in vulcanized latex and other rubber goods.

Dividends Declared

COMPANY	Stock	Rate	Payable	Stock of Record
Dominion Rubber Co., Ltd.	Pfd.	1¾% q.	Dec. 31	.....
Firestone Tire & Rubber Co.	Com.	$2.00 ex.	Jan. 1, 1928	Dec. 20
Firestone Tire & Rubber Co.	Com.	$1.50 q.	Jan. 20, 1928	Jan. 10, 1928
General Tire & Rubber Co.	Com.	$0.75 q.	.....	Dec. 20
General Tire & Rubber Co.	Com.	$2.00 ex.	.....	Dec. 20
India Tire & Rubber Co..	Pfd.	$1.75 q.	Jan. 1, 1928	Dec. 20
Seiberling Rubber Co.....	Pfd.	$2.00 q.	Jan. 1, 1928	Dec. 20
Seiberling Rubber Co. (initial)	Com.	$1.00	Dec. 15	Nov. 28

Extra Firestone Dividend

The Firestone Tire & Rubber Co., Akron, O., has declared an extra dividend of $2 on the common stock, besides the regular quarterly dividend of $1.50 a share. The annual rate has been raised from 6 to 8 per cent.

Net income of $13,780,966 for the year ended October 31, after depreciation, charges and federal taxes, equal after preferred dividends to $33.89 a share earned on the common stock. This compares with $7,622,339, or $16.90 a share, earned in the previous year.

In his report to stockholders, Mr. Firestone said:

"This has been one of the most profitable years in the history of the company. Our sales amounted to $127,696,759. On account of reduction in prices, sales in dollars were less than last year. However, our sales in pieces were larger than last year, due to a very large increase in dealer sales which more than offset a reduction in number of tires sold to manufacturers." Sales in the previous year were $144,397,000.

Okonite Financing

Proceeds of the sale of $1,000,000 7 per cent preferred stock and $2,000,000, 5½ per cent gold debentures, of the Okonite Co., are to be applied toward acquisition of the Hazard Manufacturing Co., and to retire the company's 7 per cent 10-year sinking fund gold notes, 8 per cent cumulative preferred stock, and all notes payable.

The Okonite company, founded 1878, is one of the leading United States manufacturers of high quality insulated electrical wires and cables. It has plants at Passaic, New Jersey, and is now acquiring plants from Hazard Manufacturing Co., Wilkes-Barre, Pa. Products include super-tension wires and cables for aerial and underground power transmission, train control wire, covered electrical wire, and varnished cambric and rubber insulated wires for a wide variety of industrial and other purposes. It also owns a 50 per cent stock interest in Okonite-Callender Cable Co., Inc., Paterson, N. J. Sales in 1926 were $9,372,929.

Akron Rubber Stock Quotations

December 21, 1927

Company	Bid	Asked
Akron Rubber Reclaim	27	29
Akron Rubber Reclaim, pfd.	90	.....
Falls	4½	6
Faultlesss	37	40
Firestone	225	235
Firestone, 6% pfd.	108¼	.....
Firestone, 7% pfd.	108¼	.....
General	...	195
General 7% pfd.	...	110½
Goodrich	93½	95
Goodrich, pfd.	110	111
Goodrich, 6½s	107½	108½
Goodyear	63¼	64¼
Goodyear, 1st pfd.	95	96
Goodyear, 5s 28	100½	100¾
Goodyear, 5s 57	94½	94¾
Goodyear, 5½s 31	100½	101
India, 7% pfd.	86¾	.....
India, com.	16½	22½
Mason	—¾	1½
Mason, pfd.	9	13
Miller	19½	20½
Miller 8% pfd.	91	92
Mohawk, 7% pfd.	57	60
Mohawk	17	30
Rubber Service Lab.	...	50
Seiberling	37	39
Seiberling 8% pfd.	102	.....
Star	...	5

New York Stock Exchange Quotations

December 22, 1927

Company	High	Low	Last
Ajax Rubber, com.	11⅝	11¼	11⅝
Fisk Rubber, com.	16¼	16⅛	16¼
Fisk Rubber, 1st pfd. (7)	90¾	90¾	90¾
Goodrich, B. F., Co., com. (4)	93	92⅜	92⅝
Goodrich, B. F., Co., pfd. (7)	110¼	109¼	110¼
Goodyear Tire & Rubber, com.	63¼	62½	62½
Goodyear Tire & Rubber, 1st pfd.	96½	96¼	96⅜
Intercontinental Rubber (1)	21	20	20⅛
Kelly-Springfield Tire, com.	27¾	26¾	27¼
Kelly-Springfield Tire, 8% pfd.	83¼	81½	82
Lee Rubber & Tire, com.	17	16⅞	16⅞
Miller Rubber, com.	21½	21	21
United States Rubber, com.	55⅛	54¼	55
United States Rubber, 1st pfd. (8)	102½	102½	102½

The Rubber Industry in America

Ohio

With spring dating orders for tires piling up in larger volume than ever before, Ohio rubber factories have been stepping up production during December. Following several days' shutdown for the Christmas and New Year holidays, the rubber manufacturers were preparing to start the new year with production schedules considerably higher than those in effect last year.

Rubber authorities in Akron are confident that 1928 will be a banner year for the industry. Not only are unit tire sales under the spring dating plan well ahead of this time last year but the dollar volume of sales is greater, despite recent reductions in tire prices.

One of the most favorable factors in the situation is the outlook for a comparative stable crude rubber market. Most authorities expect the trend of rubber to continue upward. An advance in tire prices next year is predicted which should materially increase the earnings of the rubber companies.

Goodrich and Firestone are handling a record breaking rubber footwear business. Production of Zipper boots is at a new high point at the Goodrich factory. Miller sales are increasing after a rather poor year in 1927. Officials report bright prospects for 1928. William E. Duck, managing director of Firestone in England, who was a recent visitor to the Akron plant, reports increasing business in that country for automobiles and tires.

The Goodyear Tire & Rubber Co. will be on a production basis of more than 60,000 tires a day early in 1928, it is reported. The new factories in Australia and in England will be in full operation, as well as the California and Canadian tire units. The cotton fabric mills operated jointly by the Goodyear and Fisk companies in Massachusetts, which have been shut down for the past month, will reopen early in January.

Officials of The B. F. Goodrich Co., Firestone Tire & Rubber Co., Miller Rubber Co., General Tire & Rubber Co. and the Seiberling Rubber Co. announce that their production will be increased next year. Among the smaller companies, Mohawk, India and Mason report an increased demand for their product.

Goodyear Tire & Rubber Co. test cars this year are operating on roads in the vicinity of Macon, Ga., Phoenix, Ariz., and Tampa, Fla. Hot weather has always had a bad effect on tires, officials point out. In the summer months the fleet is operated in the Akron territory. Goodyear has tested its tires in this manner for more than 20 years.

William O'Neil, president of the General Tire & Rubber Co., predicts that the price of crude rubber will continue on its upward trend for some time to come. He believes that the market soon will reach and pass 50 cents a pound.

"As preparations are being made to produce millions more tires in 1928 than ever before, a few cents a pound difference in rubber cost is bound to have a vital influence on tire costs and finally, on their selling price. With the continued manufacture of second and third grade lines of tires, in which all manner of rubber substitutes are used, the strain on the supply of new, pure, rubber will not be as great as might seem at first thought. General will continue to make only one first grade line. Tires are cheaper than ever before in tire history, but tire prices must change if rubber continues to rise and there is no way to go but up."

The National Tire Dealers' Association has moved its headquarters from Milwaukee to Akron, Ohio, and is now domiciled at 515 United Building. H. F. Porter is in charge.

The Mack Rubber Co., Akron, Ohio, recently organized by T. F. McGuiness, manufactures tires specially designed for the small car. Mr. McGuiness has been engaged for over twenty-five years in the development and manufacture of automobile tires and accessories.

The Republic Rubber Co., Youngstown, Ohio, closed a successful year October 31, 1927. The fiscal year has been changed to October 31, closing, in keeping with the Lee Rubber & Tire Corp., report of which will soon be issued.

The Giant Tire & Rubber Co., Findlay, Ohio, has been very busy for the past few months working on full molded tubes. The engineering department and laboratories have worked through different formulas, and many tubes have been tested on test cars, making sure that they are ready for real service. So far only a few sizes are in production.

The Rainbow Tire & Rubber Co., 187½ South High street, Columbus, Ohio, reports good business. The company is housed in an up-to-date factory of slow burning construction, the main building of which is two stories, 300 feet long and 100 feet wide. Charles E. Ross is president.

Firestone Activities

The Firestone Tire & Rubber Co. will expand production and sales facilities on a large scale during 1928, following the best and most profitable year in its history, President H. S. Firestone announced at the annual stockholders meeting in the Firestone clubhouse December 15. He told of the new plant now under construction at Los Angeles, the expansion of the Canadian factory, about a 100 per cent increase in export business, plans for a factory in England, of the purchase of the world's largest cotton fabric mill at New Bedford, and of the progress being made in crude rubber cultivation in Liberia.

"During the year we completed an addition to our Plant 2, giving us a capacity of 45,000 tires and 50,000 tubes a day," Mr. Firestone said. "We believe this is the most economical plant in the world for the manufacture of tires and tubes.

"Plans for the new California plant have been completed, and ground has been broken. The factory will have a daily capacity of 5,000 casings and 7,000 tubes a day. It will have the latest and most efficient equipment.

"The Canadian company has had its most prosperous year. An extension to this plant is now being completed that will increase its capacity 60 per cent.

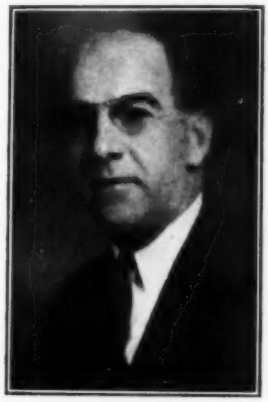
"The Xylos Rubber Co. produced and sold 47,000,000 pounds of reclaimed rubber during the year, a large increase over 1926. Our Singapore washing and refining plants and warehouses for crude rubber are great advantages to the company. We are enabled to buy rubber in the primary markets from our ten buying offices in the Far East and put it in good condition at our Singapore plant for shipment to the Akron plant."

TOTAL AUTOMOBILE PRODUCTION, according to Department of Commerce, for nine months of 1927 was 2,851,736, of which number 2,509,018 were passenger cars and 342,718 trucks. The corresponding period in 1926 totaled 3,475,926, passenger cars reaching 3,118,629 and trucks 357,297.

Republic Rubber Co. Elects President

The Board of Directors of the Republic Rubber Co., at a meeting held on December 5, at Youngstown, Ohio, elected J. H. Connors, president, to succeed John J. Watson who continues as chairman of the board.

The elevation of Mr. Connors to the presidency is in recognition of his work during his six years with the company



J. H. Connors

which, under his management, has broadened its manufacturing operations to include many automotive specialties in addition to a standard line of tires and mechanical rubber goods, taking its place in the front ranks for the high quality of its product and high standard of its business policies.

Mr. Connors has been connected with the industry for over twenty years, starting his apprenticeship in the Boston branch of The B. F. Goodrich Co. until 1916 when he was promoted to the position of manager of Diamond mechanical sales at Philadelphia. In 1920, he became manager of Diamond mechanical sales for the Akron sales division at Akron, Ohio, later having jurisdiction over tire sales of that division. When the Republic company went into the hands of a receiver in 1922, Mr. Connors became assistant general manager and worked hard to rehabilitate and place the company upon a sound basis. The Lee Rubber & Tire Corp. acquired the Republic company in 1923, Mr. Connors assuming the duties as assistant to the president and general manager, afterwards being made vice president and general manager which position he held until his recent election to the presidency.

RUBBER SOLUTIONS, IT IS SAID, MAY BE made more adhesive by adding a small amount of alum, with or without common table salt. For non-inflammable solutions the solvent is composed of benzine, 1 part; carbon tetrachloride or trichlorethylene, 2 parts.

NEW TIRE FOR SMALL CARS

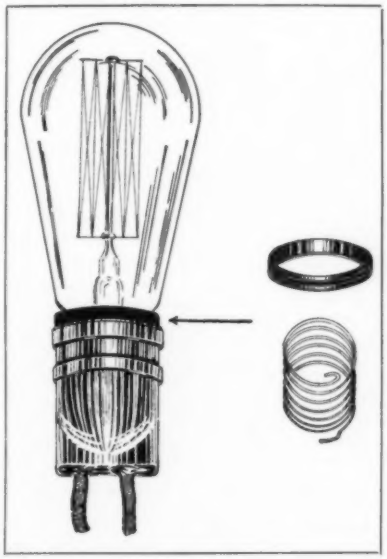
The announcement of the new 30 by 4.50 balloon tire for small cars begins a new chapter in automobile tire history, according to W. F. Pfeiffer, general manager of The Miller Rubber Co., who says:

"Not only will the Ford cars of the future be equipped with the new 30 by 4.50, but other light cars with rims for 29 by 4.40 tires may use them for replacements. All cars with 21-inch rims may use the new balloon size; this includes Model T Fords, Chevrolets and other light cars.

"Tire history, in its progress, has been divided into definite periods. The cord tire replaced the old fabric tire when 30 by 3 and 30 by 3½ were the most popular sizes. Another step forward produced the balloon tire which gained in popularity over the high pressure cord and balloons became standard equipment. Now the new 30 by 4.50 makes a bid for the spotlight; designed to meet the requirements of greater speed in lighter cars.

WEATHERPROOF SOCKET LOCK

To prevent the theft of lamps, a molded, composition, weatherproof socket has been devised by the Ren Manufacturing Co., 290 Main street, Winchester, Massachusetts. It consists of a coiled spring and a grooved ring impregnated with rubber to increase its strength and insulating properties. There is only one style of punch used to



Ren-Lock

apply the lock to the socket which grips the base of the lamp and will fit all sizes of lamps having the medium size base.

The Ren-Lock will be of particular interest to factories having wet or concrete floors, such as rubber factories, paper mills, chemical plants, etc.

Goodyear Tire Sales Specialist

Charles H. Williams, of the Goodyear Tire & Rubber Co., Akron, Ohio, and a noted tire sales expert, has had a busy and successful career. Born in Los Angeles, June 5, 1878, he received a high school edu-

Charles H. Williams

cation there and next entered Throop University, Pasadena, graduating in 1900. From that year to 1906 he was employed by the Pacific States Telephone Co., and then he became interested in rubber goods, specializing in bicycle tires as a salesman on the Pacific Coast for the Diamond Rubber Co. In 1912 he joined the Goodyear forces as branch manager in Fresno, California, later occupying a similar position in Portland, Oregon; St. Louis, Missouri, and Chicago, Illinois. Becoming manager of the Eastern Division Export Department, he traveled in Africa, India, China, Japan, Java, Sumatra, Philippine Islands, Federated Malay States, etc.

The Mason Tire & Rubber Co., Kent, Ohio, next chose him as vice president and sales manager, and he served in those capacities in 1924, 1925, and 1926. Returning to the Goodyear fold, he became attached to the sales manager's office as special representative of the company in the Western Division.

Mr. Williams is a member of the Sales Managers' Association and the National Automobile Dealers' Association; a 32d Degree Mason; and a Shriner. He is one of the few tire salesmen who can speak Chinese, having learned to converse in the Cantonese dialect when manager of the telephone exchange in San Francisco before he entered the rubber business. His business address is care of the Goodyear company, Akron, and his home is 214 Merriman Road, that city. He hopes to return to California some day and join the Native Sons of the Golden West.

New Jersey

Some of the New Jersey tire manufacturers announce a reduction in the price of all sizes of balloon and high pressure tires for pleasure cars. There has been no cut on tubes or tires for trucks. This places pleasure car tires at the lowest price for several years. It is believed that this action will increase the sale of tires. There has been a decline in the production of brake lining, but this line of business is expected to show improvement about the middle of January. Hard rubber production shows no improvement over last month. Sales of rubber heels and soles continue good.

The Rubber Manufacturers' Association of New Jersey held its annual meeting and dinner on December 13 at the Stacy-Trent Hotel, Trenton, N. J. Following the dinner a talk on the rubber situation was given by Colonel Daniel Voorhees, of the Manhattan Rubber Co., Passaic, N. J. The following officers were elected: President A. Boyd Cornell, Hamilton Rubber Manufacturing Co.; Vice President, Clarence D. Wilson, Luzerne Rubber Co.; Secretary, Charles E. Stokes, Jr., Home Rubber Co.; Treasurer, Horace B. Tobin, Woven Steel Hose & Rubber Co.

The Combination Rubber Co., Trenton, N. J., has reduced the price of cord and low pressure tires for pleasure automobiles. There was no cut in tires for trucks. Prices on pleasure car tires are now the lowest they have been in several years. The Combination company reports a little improvement in production of all sizes of tires.

C. Edward Murray, Jr., president of the Murray Rubber Co., Trenton, N. J., has returned from a business trip in the Far West. He visited all the Murray agencies in western cities.

The Thermoid Rubber Co., Trenton, N. J., announces that business is a little quiet at present with prospects of more activity about the middle of January. The company is now shipping brake lining to all parts of the world.

The Murray Rubber Co., Trenton, N. J., reports that business is normal and an increase in production is expected after January, 1928.

The Luzerne Rubber Co., Trenton, N. J., states that business has not shown any increase during the past month.

General C. Edward Murray, president of the Crescent Insulated Wire & Cable Co., Trenton, N. J., has been on a gunning trip to Green Pond, South Carolina.

The first restraint order in a suit brought under the blue sky law passed by the New Jersey Legislature has been signed by Vice Chancellor Backes. It temporarily restrains, pending final hearing, the Combination Puncture Proof Tire Co., Inc., of Camden, N. J. from selling or offering for sale, promoting, advertising or distributing any more shares of its stock. The company consented to the order. The case is the first brought under the blue sky law and was brought in the name of Attorney General Edward L. Katzenbach. The company is charged with selling shares of its stock "by deception, misrepresentation and fraud."

The United States Rubber Co. has opened its plant at New Brunswick, N. J., for the storage of crude rubber for its various factories throughout the United States. The company will ship crude rubber from the Far East to New Brunswick. Three buildings will be used for that purpose. The plant has a capacity of 30,000 bales of rubber.

Mercer Rubber Co., Hamilton Square, New Jersey, manufacturer of mechanical rubber goods, has installed all new machinery, taken out steam engines and put in electricity. According to I. E. Read, treasurer, the factory is thoroughly up-to-date and well equipped to care for any orders that come along.

Adolph Martin Sons, Inc., 12-16 Linden street, Passaic, New Jersey, patent solid wooden shells and rollers for printers, bleachers, dyers, rubber, and machine shops.

E. M. Frazier Goes to The Murray Rubber Co.

E. M. Frazier who was associated for fourteen years with the Boston Woven Hose & Rubber Co. and was with the Voorhees Rubber Manufacturing Co. for ten years, has now become a member of the Murray Rubber Co., Trenton, New Jersey. Mr. Frazier will act as salesman of the rubber mechanical goods line, covering New York State and a southern territory.

Murray Tire Sales Manager

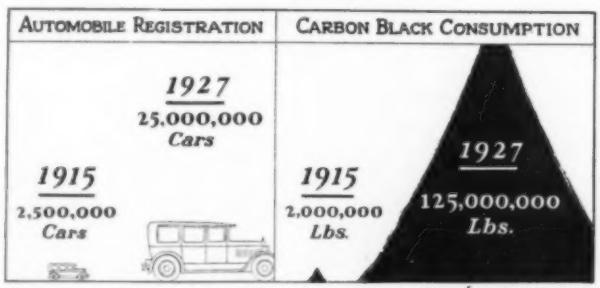
Albert J. Dornseif, manager of the tire and tube division of the Murray Rubber Co., Trenton, N. J., started in the sales department of the Murray company seven years ago as factory representative between Louisville, Ky., and St. Louis, Mo., taking in eastern Missouri, southern Illinois, southern Indiana and eastern Kentucky. In a few years he topped the list of factory representatives and last August was made manager of tire and sales in the Midwest with offices in Chicago.

Albert J. Dornseif

Mr. Dornseif's success in obtaining new outlets, both through his own efforts and his ability to select good men and train them to sell goods, led to his appointment as general manager of the tire division. His many friends knowing of his ability feel confident that he will be unusually successful in his new position. Mr. Dornseif, who is 35 years old, was born in Worden, Ill., and brought up there in the hardware business conducted by his father. Before joining the Murray company he was five years with the Goodyear company.

TOTAL RUBBER IMPORTS OF CANADA FOR the first nine months of 1927 were 36 per cent more than the imports for the same period of 1926. The declared value of the rubber imported was 38.86 cents per pound for 1927 and 59.33 cents for 1926.

Registration of automobiles has increased ten fold in 12 years. Consumption of carbon black in tires has increased sixty fold in 12 years.



Binney & Smith Co.

Farrel-Birmingham Plants to Continue Original Lines

An erroneous impression has been created by the recent merger of the Farrel Foundry & Machine Co. and the Birmingham Iron Foundry, by the rumor that the Farrel plant at Ansonia was going to discontinue the manufacture of rubber machinery and devote itself to other lines while the Birmingham plant would be given over exclusively to the manufacture of rubber machinery. According to F. Farrel, Jr., vice president, this is not the case and rubber machinery will be manufactured in all the plants, nor is it the intention of officials to discontinue any part of the line in any of the plants of the company.

New Haven Sherardizing Co.

Announcement has been made by The New Haven Sherardizing Co., Hartford, Connecticut, of the reorganization of the Sherardizing Division, 911 Sweitzer avenue, Akron, Ohio, and the Chromolite Process Corp., 1033 South High street, Akron, Ohio, the latter company recently purchased by the New Haven company. Both divisions are now housed in the same building, and with the reorganization and the way the plant is laid out, officials believe the company to have one of the most flexible and largest chrome plating jobbing plants in the country, capable of handling the smallest article to material weighing several tons.

The official staff at Akron consists of: James A. Verheyden, in charge of the Chrome Division; Peter Tapar, in charge of the Sherardizing Division; and Stanley M. Neal, formerly associated with General Motors Corp., as general sales manager.

Accident to Employes of Easthampton Company

An accident to the vulcanizing plant on November 23 of the Easthampton Rubber Thread Co., Easthampton, Massachusetts, resulted in the fatal burning of two employes with a third seriously ill at the Dickinson Hospital. It is thought that the accident was caused by the failure to reduce steam pressure when removing a vulcanizer door which weighed a ton.

The Holstein Rubber Co., Inc., Hartford, Connecticut, announced at the yearly convention of the sales force that a new super-service rubber tile is being marketed, made of the best quality materials, the price considerably higher than other tiling. The company states that production is practically sold out for the months of January, February and March, and orders are now being taken for April delivery only.

New England

Hood Rubber Co., Watertown, Massachusetts, has appointed Ray Blanchard production manager of all the manufacturing divisions of the company.

John H. Kelly has become a member of the manufacturing division of the Firestone Footwear Co., Hudson, Massachusetts. Mr. Kelly was formerly assistant superintendent of the Converse Rubber Shoe Co.

The New England Tire Fabric Co., Worcester, Massachusetts, will manufacture tire fabrics and has been incorporated with a capital of $250,000. Joseph W. Hawks is president and William W. Lombard is treasurer.

The Sanitary Rubber Co., Providence, Rhode Island, will open a branch plant at North Attleboro, Massachusetts. The company manufactures rubber aprons and various other rubber goods.

The Hood Rubber Co., Watertown, Massachusetts, has changed its fiscal year to coincide with the calendar year. When most of the company's business was done through jobbers, the fiscal year ended March 31. As distribution is now chiefly through its own branches, it is felt that operations can be tabulated more accurately in the calendar year.

Arthur T. Hopkins, formerly identified with the mechanical and footwear divisions of the U. S. Rubber Co., now treasurer of H. M. Haven & A. T. Hopkins, Inc., represents the latter company in Engineering Associates, Inc., 11 Beacon street, Boston, Mass. This organization provides in one group the engineering, construction and financial experience of established organizations and individuals, thus making available complete service in all branches of engineering and incidental matters.

The Appleton Rubber Co., Franklin, Massachusetts, reports that the tape factory of the company is operating at 100 per cent. J. E. Cameron is general manager of the Appleton company.

The Goodyear India Rubber Shoe Co. and the **Goodyear India Rubber Glove Co.** closed December 23 for the purpose of taking inventory. The plants will reopen January 2.

The Norwalk Tire & Rubber Co., Norwalk, Connecticut, reports a net loss, after deducting all charges, for the year ended September 30, of $46,856, a cut in the loss of the preceding year which amounted to $296,156. The bank indebtedness was reduced from $500,000 to $200,000, and the company shows a much improved financial position.

The Washburn Wire Co. has commenced extensive additions and improvements to its plant in Phillipsdale, East Providence, which will involve several hundred thousand dollars before completed. A new building is now in process of construction to be used as a rod mill. It is of steel and glass construction, one story in height and 108 by 132 feet, costing about $300,000.

The Barco Co., Inc., Providence, has been incorporated under the laws of Rhode Island to deal in rubber goods with a capital stock consisting of 100 shares of common stock without par value. The incorporators are Frank M. Bartlett, William A. Gunning and John G. Carroll. At the time of receiving its charter it was stated that it intended to establish a plant at North Attleboro, but it is understood that this has been abandoned.

The Phillips Wire Co., Pawtucket, has been absorbed by the General Cable Co. of New Jersey. The Pawtucket plant is a part of the $5,000,000 merger that was planned some time ago to include several of the largest wire and rod companies in the country. The Pawtucket plant is a part of the Safety Cable Co. which was part of the merger when it was first projected. Officers of the plant are as follows: Walter F. Field, president; William C. Hall, treasurer, and George T. Cottle, vice president and general manager, all of New York.

The National India Rubber Co.'s fire company held it first annual dinner at the factory on the evening of November 16. James J. Drummer officiated as toastmaster and the principal speaker was E. W. Beck, supervisor of safety of the United States Rubber Co. Others who spoke included Industrial Relations Manager E. A. Currier, Jr., Superintendent J. E. Robinson and Fire Commissioner C. A. Ostby and Chief John Grabert.

Edward A. Currier, Jr., industrial relations manager of the National India Rubber Co., has organized an eight-team bowling league representing the several departments of the rubber factory at Bristol and some exciting games are expected during the remainder of the winter.

Archer Rubber Co., Milford, Massachusetts, will soon occupy the new buildings which the large quantity of business handled by the firm has made necessary. The addition will add between 40 and 50 per cent floor space to the shops.

Eastern

J. M. Huber, Inc., 460 W. 34th street, New York, N. Y., completed a new carbon black plant at Lance Creek, Wyoming, early in 1927. This factory, which has the exclusive gas rights on a large block of acreage in eastern Wyoming, is said to be the largest single unit plant ever constructed and embodies many improvements for the control of uniformity and yield. It is devoted entirely to the manufacture of carbon black for the rubber industry. Shipping warehouses are located at both Manville and Lusk, Wyoming, a few miles from the factory.

Mathesius, Inc., 507 Fifth avenue, New York, N. Y., is a personnel adviser specializing in rubber technology, chemical, engineering and sales positions. F. Y. Stewart, president of the company, is well known in the rubber industry.

A. Klipstein & Co., 644 Greenwich street, New York, N. Y., has announced the opening of a new office, January 1, at Akron, Ohio. It will be under the direction of competent and experienced practical rubber material specialists, well known to the rubber industry in all its departments. E. L. Bullock is head of the rubber material division of the company.

Aage P. Bierrie has opened an office at 225 Broadway, New York, N. Y., under the firm name of Bierrie & Co., Inc. The new company will import and deal in crude rubber.

U. S. RUBBER SHARES FOR IRÉNÉE DUPONT

Irénée duPont issued a statement confirming reports that he and a few other individuals had acquired a considerable block of United States Rubber Co. stock which he declared to be a purely private speculative investment. The duPont company as a unit has no interest in these shares, the buyers being individuals who own large shares of stock in the du Pont company. The statement was given to the press by Charles K. Weston, manager of the duPont Publicity Bureau.

Haldane, Bierrie & Co., Inc., 16 William street, New York, N. Y., announce that the name of the corporation has been changed to Haldane & Co., Inc.

Goodall Company Moves To Larger Quarters

The New York branch of the Goodall Rubber Co. has moved to its new quarters at 50 Murray street. Every modern convenience for the care, storage and shipping of rubber goods is being installed. The Goodall company has specialized in the manufacture of quality rubber goods for thirty years. F. B. Williamson, Jr., the president of the company, started as a salesman in the New York district. Eighteen years ago he opened the New York branch and has devoted his entire efforts to the proper construction of mechanical rubber goods.

Clark Harrison, president of the Bloomingdale Rubber Co., 501 Fifth avenue, New York, N. Y., reports that the company's factories at Chester, Pennsylvania, and Butler, New Jersey, are running full capacity on high tensile and low gravity reclaim which is being used extensively in both tires and tubes.

The Schwarzwaelder Co., Philadelphia, Pennsylvania, rubberizers, waterproofers and spongers, is now installing machinery in its new plant at Tioga and Salmon streets, where the firm will soon open the enlarged rubberized department of the business. The plant contains more than 50,000 square feet of space, all on one floor, and can turn out 10,000,000 yards of rubberized fabric a year. It is expected that the company will be able to offer a full line of fabrics for raincoats, hospital sheetings, shower curtains and shoe materials by February 1. Harry Danenbaum is president.

The Pittsburgh Valve, Foundry & Construction Co., 26th street and A. V. R. R., Pittsburgh, Pennsylvania, is pleased to announce the addition to its sales organization of Robert Whyte. Mr. Whyte was associated for many years with The Pittsburgh Piping & Equipment Co. and The American Foundry & Construction Co.

The Allen Tire & Rubber Co., Allentown, Pennsylvania, which has been in the hands of receivers has wound up its affairs and an order has been signed by the President Judge of the Court of Common Pleas of the County of Lehigh relieving Harold W. Stimpson and Henry D. Jordan, receivers.

Comprehensive Exhibit of Rubber Goods

An exhibit of great interest to rubber men is that pictured in the accompanying illustration. It is installed in the visitor's reception room of the Binney & Smith Co., 41 East 42nd street, New York, N. Y.

A more striking exhibit of the wide range of uses to which Micronex carbon black is put in the rubber and allied industries can nowhere else be found. An illustrated folder descriptive of this exhibit is being sent out to the trade by the company. It names 38 or 40 lines of manufacture other than rubber in which carbon black enters as an important component.

Of special interest to rubber men is the showing of products in which Micronex has been employed—tires and tire casings, boots and shoes, soles and heels, auto toppings, rubber tubing and garden hose, rubber paving blocks, auto spring shackles, waterproof raincoat materials, rubber insulation materials including telephone apparatus, radio panels, and rubber covered wire. A special invitation to view this exhibit is extended to the trade and particularly out of town visitors.

McClaren-Ajax Merger

An interesting announcement to the industry is that H. L. McClaren, president of the McClaren Rubber Co., Charlotte, N. C., is to shortly resume his previous position as active head, in the capacity of president and general manager, of the Ajax Rubber Co., Inc. Authority is vested in Mr. McClaren to nominate the

H. L. McClaren

majority of the board of directors. On the new board will be four of the present officers and directors of the McClaren Rubber Co.: H. L. McClaren, C. C. Coddington, R. A. Peavey and Lee A. Folger.

Under the new arrangement, the Ajax Rubber Co. acquires the corporate stock of the McClaren Rubber Co., but the latter concern retains its complete identity. Mr. McClaren continues as president of the McClaren company, which will be operated as an individual unit with the same sales program and policies.

The stockholders of the McClaren company exchanged their common stock for common stock of the Ajax company, on the basis of ten shares of Ajax for each share of McClaren. In exchange for 5,000 shares of preferred stock of the McClaren company, the Ajax will issue its five year 8 per cent debenture notes callable at any time after two years from the date of issue at $115 a share.

Mr. McClaren plans to move his headquarters to the Ajax factory at Racine, Wisconsin, but will continue to direct the policies of the McClaren company at Charlotte. He will leave Charles R. Collins as general manager of the McClaren Rubber Co.

Midwest

James T. Kennedy has resigned from the Mason Tire & Rubber Co. and joined The B. F. Goodrich Co., making his headquarters in Detroit, Michigan.

The Goshen Rubber Manufacturing Co., Goshen, Indiana, is planning the erection of a large addition to its present plant. The proposed extension will furnish employment for fifty more men.

The Diamond Braiding Mills, Chicago Heights, Illinois, manufactures colored rubber wire for radio purposes consisting of tinned conductors with cotton separator, insulated with a high grade compound of colored rubber with a waxed finish.

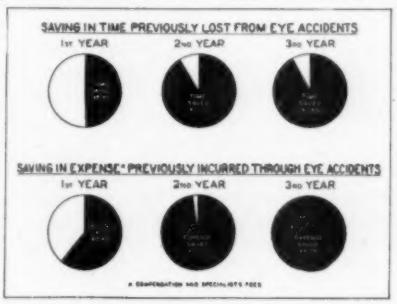
Vulcanizers Material Co., 310-312 Winter avenue, Grand Rapids, Michigan, manufactures a complete line of tire repair material.

Standard Traffic Marker Co., 1711-13 East Second street, Wichita, Kansas, manufactures rubber traffic markers. C. S. White is president.

Moline Corp. Purchases E. H. Wilson Company

The Moline Manufacturing Corp., Moline, Illinois, recently purchased all the assets of the E. H. Wilson Manufacturing Co., Moline, Illinois, and will continue in the manufacture of automobile bodies metal stampings, mechanical rubber goods and kindred lines. The new corporation will have a capitalization of $475,000 in bonds, $425,000 preferred stock and 30,000 shares of no par value common stock. It will have assets of approximately $1,250,000 and no current or other liabilities except the bonds.

The officers of the new corporation are: R. G. Cundy, president; J. P. Pearson, vice president and treasurer, and W. L. Mueller, who will be vice president and secretary.



Graphic Presentation of the Results of Establishing an Eye Room in an Industrial Plant.

New Manager for Century Tire Co.

The Century Tire Co., Chicago, Illinois, announces the promotion of Matthew Klein to the position of general superintendent of the plant. Mr. Klein has had a long and thorough schooling in all branches of tire manufacture and

Matthew Klein

development since the early days of the industry. He started with the G & J branch of the U. S. Rubber Co. of Indianapolis in 1902 remaining with that organization until 1911, his position at the time being assistant master mechanic in charge of the manufacture of mold equipment. From 1911 to 1917 Mr. Klein was superintendent of maintenance with the Federal Rubber Co., Cudahy, Wisconsin, followed by a year with the Racine Rubber Co., after which he joined the U. S. Expeditionary Forces. His next position was general factory inspector in the Federal plant and following this, he became superintendent of maintenance with the McClaren Rubber Co., Charlotte, North Carolina, which position he held until going to the Century company.

Mr. Klein has studied all phases of machinery design, tire development, production and tests for years. He is a thorough believer in continuous competitive tests of tires and has contributed many new ideas in this field of tire manufacture. Among the mechanisms which he has designed entirely or in part are: a splicing attachment for bias cutters, a tire building, a tire wrapping and a bead wrapping machine. Mr. Klein has always been associated with quality manufacturers and has been a strong factor in developing machinery for lowering costs on the best grades of tires.

The plans of the Century company for increasing production on quality tires requires a steady improvement in tire quality and the addition of other exclusive points to those already becoming so well known in the industry. In these plans, it is expected Mr. Klein will take an important part.

Pacific Coast

Very satisfactory in gross sales and quite good in net profits is the consensus of opinion regarding 1927 held by rubber manufacturers in the Pacific Coast region and by representatives there of eastern and mid-western rubber factories. A steady improvement in the latter part of the year quite offsets the quieter trade experienced by many in the earlier part of 1927. Quite unanimously they forecast an excellent year for business in 1928, all conditions appearing exceptionally favorable. As one leader put it, "We are in for a good year, and about the only thing that could spoil the fine prospects would be an attempt on the part of one or more of the big ones to 'rock the boat' in order to bother some rivals." Price-cutting is the evil most dreaded by tire makers and distributers, and they contend that the 1928 record can be easily pushed much above that of 1927 and good profits realized by all concerned if no demoralizing price reductions be sprung on the trade.

The seasonal rains having started earlier than usual and having already scored above the normal average, dealers in rubber footwear and clothing are much gratified, especially in the northwest area, and the representatives of the eastern concerns which supply practically all of such goods predict clean shelves well before the rains are over and urgent appeals for goods from dealers who feared being overstocked. The dealers are said to be responding well to the quiet campaign that various manufacturers have been carrying on for simplification in sizes and styles of footwear, and it is said that many good-sized contracts are being made now for deliveries in the late summer.

Trade in druggists' sundries, mining and oil field supplies, and miscellaneous mechanical rubber goods is markedly improving. Business surveys by banks also show an exceptionally favorable trade trend for 1928.

Goodyear Tire & Rubber Co., of Los Angeles, Calif., is working at full capacity and in some departments on overtime. Preparations are being made for the building soon after January 1 of the 10,000,000th tire produced at the big California plant.

United States Rubber Co. has been awarded the contract for furnishing and laying 20,000 square feet of rubber flooring in the new buildings of the University of California, Southern Branch, at Westwood, Calif. General business has been unusually good with the company for a considerable time past, according to Pacific Coast Manager J. B. Brady, of San Francisco, who recently was in conference in Los Angeles with Branch Manager J. B. Magee of that city.

Pioneer Rubber Mills, San Francisco, Calif., executives have lately been distinguishing themselves at golf. On December 11 D. D. Tripp, one of the vice presidents, joined the hole-in-one club at the California Golf Club at Baden, making the "ace" at the tricky third hole, measuring 145 yards. He is a member of the Los Altos Country Club at Los Altos. The other members of the foursome were: H. R. Mansfield, also vice president; J. D. Horan, Los Angeles branch manager, and a member of the Los Angeles Country Club; and Purchasing Agent K. E. Johnson.

Chanslor & Lyon Tire & Rubber Co., which operates the plant formerly owned by the King Tire & Rubber Co., 105th avenue and Foothill boulevard, Oakland, Calif., is now making radiator hose in addition to a complete line of C. & L. casings and inner tubes, as also hard rubber batteries.

Beyerle Manufacturing Co., 224 East 11th street, Los Angeles, Calif., manufacturers of light aprons and other rubber toilet articles, reports a decided increase in business recently. The company's main factory is in New York City, which supplies the Coast plant with all its sheeted stock. A. H. Epstein of New York recently took charge of the Coast concern, the former manager, E. M. Gross, having returned to New York.

Southwestern Rubber Works, 516 East 4th street, Los Angeles, Calif., is reported by Manager F. J. Keese as being very busy producing repair stocks, and recently added to its equipment.

Portland Better Business Bureau and the Oregon state corporation commissioner have been investigating a concern with offices in Portland, Seattle, San Francisco, and Los Angeles which has been seeking "donations for scientific research" of $250 and upward which planned to produce an automobile inner tube which could not be punctured and which would perpetually compress its own air, in addition to carrying on what the Bureau termed "a lot of other visionary schemes." No stock was sold to the 900 members nor any guarantees given for the donations.

West American Rubber Co., 400 North Avenue 19, Los Angeles, Calif., according to President Douglas Radford, is producing an unusual amount of rubber goods for the oil industry following a recent revival of activity in the latter; and is not only shipping a large amount of suction and discharge hose, swabs, packings, etc., to the Mid-Continent oil fields, but also to fields in South America, Near and Far East fields.

Dayton Rubber Manufacturing Co., Dayton, Ohio, recently appointed Joseph P. Schiller as Pacific Coast manager at San Francisco, with J. E. Osborn as operating manager. Two vice presidents of the company, D. W. Warden, in charge of merchandising, and A. L. Freedlander, in charge of production, were recent Coast visitors. Bayless Rubber Co., 1054 South Los Angeles street, will be the Los Angeles distributer of Dayton products.

Featherlike Pneumatic Products Co., 5911 South Broadway, Los Angeles, California, according to the manager and owner, Arthur A. Leltic, recently received several large orders for inflatable cushions, life preservers, etc., from the federal government and private companies for numerous airplanes now being built on the Coast and in the East.

Columbia Tire Corp., Portland, Oregon, since its reorganization a few months ago, has become very busy and has considerably extended distribution of the full line of C-T-C casings and inner tubes in which it specializes. Duncan E. Nease, who has become sales manager, spent much time in December developing new business in the Southwest section.

Sound Rubber Co., Tacoma, Washington, which became insolvent about a year ago, has practically liquidated its affairs. The plant and machinery have been sold to C. E. MacDonald Co., which has retained the factory for furniture making and disposed of the rubber working machinery, according to J. E. Berkheimer, receiver.

Pacific Balloon Co., 186 Blaine street, Riverside, Calif., manufacturer of toy balloons, has been enjoying unusually good business all through the Coast territory. The company makes dipped goods mainly, but recently it has been conducting experiments along other lines, chiefly inflatable goods. Donald Fullerton is president and general manager and Louis B. Reed is secretary-treasurer.

Thomas John Wolff, rubber planter and Manila business man, and Mrs. Wolff have been visiting Pacific Coast points on a honeymoon trip. Mr. Wolff planned also to go to New York to confer with financiers about establishing large rubber plantations in the Philippine Islands. He has long managed the Rio Grande Rubber Estates (Ltd.), near Cotabato on the Island of Mindanao, a Scottish-Philippine corporation with a

2,500-acre plantation, and which began active operations in 1912. He looks for an early modification of the insular land laws which restrict holdings to the acreage named.

Vice President C. B. Raymond of The B. F. Goodrich Rubber Co., and Mrs. Raymond, who reside in Montecito, Calif., are enjoying a five months' trip abroad.

Dr. William B. McCallum, botanist of the Continental Rubber Co. at its Salinas, Calif., guayule plantation, has gone to Torreon, Mexico, to make further researches for the company.

Century Rubber Co., it is reported, is likely to be one of the next Mid-West tire concerns to set up manufacturing on the Pacific Coast. Negotiations with the Spreckels "Savage" Tire Co. have been in progress for several months, and the principals concerned are hopeful of reaching an agreement, it is said, in the near future. The plant and its equipment have been kept in prime condition since being closed down directly after the death of the chief owner, John D. Spreckels, and San Diego is regarded as very favorable for distribution, comparing well in many respects with Los Angeles, 135 miles to the north.

MOTION PICTURES OF RUBBER ESTATES

Members of the Rubber Exchange had an opportunity December 1 of seeing how rubber is grown when motion pictures were shown by F. T. P. Waterhouse, president of Fred Waterhouse, Ltd., who has just returned from Singapore and other rubber growing sections. The pictures illustrated the various phases of the production of rubber and were viewed by many members when shown on the floor of the Exchange, 31 South William street, New York, N. Y.

Firestone Breaks Ground for Southwest Plant

In the presence of several thousand onlookers on December 15, Russell Firestone, son of Harvey S. Firestone, in conjunction with Chairman McClellan of the Los Angeles County Board of Supervisors, broke ground for the building of the big California Firestone Tire & Rubber Co. plant in Los Angeles on Manchester avenue (renamed Firestone boulevard) between Alameda and Santa Fe avenues. The event marked the beginning of active operations on the forty-five acre tract, which, with buildings and equipment, will finally represent an outlay of about $7,000,000. Present also at the ceremony were C. A. Myers, director of engineering and vice president of the parent company in Akron; R. J. Cope, manager of the Firestone Los Angeles branch; Mayor George Cryer, and other notables.

At a luncheon earlier in the day Mr. Myers announced that the construction contract had been awarded to the J. V. McNeil Co., while the structural steel contract had been awarded to the Union Iron Works.

President D. F. McGarry of the Chamber of Commerce formally welcomed the new enterprise and the company officials who sponsored it and said it meant a great impetus to the city's industrial development. He felt sure that the new concern would prove to be a worthy offshoot of the original Firestone enterprise, which had increased its business of $110,000 in its first year to $144,000,000 in 1926.

The new plant will have 500,000 feet of floor space and employ about 2,000 men. Plans are being made for an initial outturn of 5,000 casings and 7,000 inner tubes daily. The site is large enough to accommodate many more units as needed. Russell Firestone will remain on the Pacific Coast to direct the new concern, and the personnel of the company will soon be announced. Homer C. Campbell, assistant treasurer of the company, who had been aiding in launching the enterprise, has returned to Akron.

Goodrich Plant Construction

The B. F. Goodrich Rubber Co. reports that such good progress is being made in the construction of its big Los Angeles plant as to warrant the prediction that it will be in full operation by March 1. The steel skeleton and the roof of the 1,800-foot long factory are practically complete, and 380,000 square feet of concrete flooring have been laid. Fourteen carloads of machinery have already arrived and eight boatloads more are on the way, which will make a total of fully 1,000,000 tons of machinery to be set up. Included are five 500 h.p. electric motors, each weighing 26 tons, two 500 h.p. steam boilers rated at 450 pounds pressure, twenty-three of the largest capacity tire vulcanizers, and $50,000 worth of the newest control equipment to insure uniform production. It is stated that the most up-to-date devices will be installed in every department to afford the utmost efficiency. The warehouse will have capacity for enough raw material to take care of a month's output, estimating daily production at 5,000 casings and 7,500 inner tubes; and provision will be made for storing if need be 150,000 casings. There will be room enough on the grounds for building another tire unit, as well as units for hose, footwear, belting, and mechanical goods, or five in all. Resident Engineer E. Barry is in full charge of construction during the absence in Akron of Director Samuel H. Robertson, who went east to confer about some details.

RUSSELL FIRESTONE ADDRESSING THE ASSEMBLAGE AT THE GROUND BREAKING CEREMONIES, DECEMBER 15, 1927, OF THE NEW FIRESTONE TIRE & RUBBER CO.'S PLANT IN LOS ANGELES, CALIFORNIA.

Canada

Canadian tire manufacturers are faced with competition from rebuilt tires which are sold to used car buyers who do not wish to buy good tires. A new low priced line of tires is being manufactured and purchasers of used cars can buy new tires at a price which was formerly paid for rebuilt tires. The new line is made in 30 by 3½ size and priced at $5.60, which is considerably less than the next grade at $7.15. The tires do not carry any guarantee, but manufacturers state that they do not anticipate any complaints. Suitable tubes, also unguaranteed, are being made for these tires. The tires will be available after January 1 and a much wider market opened up for the tire replacement trade.

Manufacturers announce that rubber belting will now be made in 500 foot rolls in place of 400 foot as formerly. The same discount will apply on full roll orders but an intermediary discount has been set in half rolls of 250 feet. Formerly a dealer had to take a full 400 foot roll to obtain an extra discount. Now he can purchase 250 feet and secure the discount.

The greater demand for overshoes is for the low cut variety, fawn color being a prime favorite with black a strong second, while the call for grey in certain quarters is quite active. The velvet collar is also in general favor. There is still a reasonable demand for high cut overshoes as growing girls desire this particular type of overshoe and they are moving quite freely.

Dominion Rubber Co., Ltd., Montreal, Canada, is establishing Dominion tire depots in every leading center of the Dominion. Prominent tire service shops have joined in this movement. Each maintains its individual ownership but all operate as a chain bound together by the highest ideals of service. As a first step they are being painted in a striking color scheme of orange and blue.

The Independent Rubber Co., Ltd., announces the opening of a branch office and warehouse in Quebec, at 77-79 St. Dominique street, with James Brown in charge. A full line of maple leaf rubber footwear will be stocked. Mr. Brown is well known to the shoe trade in Quebec Province.

The Hannon Tire & Rubber Co., Ltd., has commenced the manufacture of automobile tires, tubes and other rubber specialties in Toronto, Ont. M. S. Hannon, a former director of the K. & S. Rubber Co., Ltd., is president and general manager, and E. M. Cockin is sales manager.

J. M. Newton, sales manager of the Kaufman Rubber Co., Ltd., Kitchener, Ont., is on a business trip covering Western Canada.

Goodyear Tire & Rubber Co. of Canada, Ltd., Toronto, Ont., presented a report at its recent annual meeting showing that the fiscal year ended September 30, 1927, was the most successful in its history. Profits were at a new record level, the plants had been employed 24 hours a day, and the outlook for the current year was stated to be very promising.

Seiberling Rubber Co. of Canada, Ltd., held its first annual sale conference in the King Edward Hotel, Toronto, Ont. H. L. Post, vice president and sales manager, W. S. Wolfe, vice president and factory manager, and F. R. Griffin, advertising manager, all of Akron, addressed the conference. F. A. Seiberling, president of the Canadian and American companies, and C. W. Seiberling, vice president of the American company, spoke at the dinner which concluded the conference.

Professor G. S. Whitby, of McGill University, Montreal, recently lectured on rubber, before a large audience at the Mechanic's Institute. By means of lantern slides he showed how rubber was obtained from the tree and made into various kinds of commercial rubber goods.

The Bowes-Whitt "Seal Fast" Co., Ltd., a Canadian branch of the Bowes Corp., Indianapolis, Ind., has leased a part of the Drake-Avery plant in Hamilton, Ont., where it will manufacture automotive specialties, comprising tire patches, etc. Officers are Robert M. Bowes, president; Charles E. Bowes, vice president; and Harold Whitt, secretary-treasurer.

C. R. LaSalle, president of the Shoe Retailers Section of the Retail Merchants' Association, speaking of the rubber situation at a recent meeting, said that the manufacturers had been asked to adopt uniform prices. Until then, it is understood that all discounts are abolished, with the exception naturally of the ordinary discounts to the trade. As the shoe retailers know there were special discounts allowed according to the quantity of rubbers bought. What the association wants from the manufacturers is not a single price at the source of production, but a uniform price of sale for the retailers, for the standardized products, with a reasonable margin of profit for the latter.

Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ont., recently celebrated "Dunlop Night" when Dunlop service pins were presented to the members of the staff according to their years of continuous service. The presentations were made by the Hon. E. B. Ryckman, K. C., M. P., president of the company. J. Westren, general manager, has the greatest number of years to his credit, having completed thirty-two years of active and continuous service. President Ryckman comes next with twenty-eight years of service. There are three in the factory staff with more than thirty years to their credit. M. A. Campbell, sales manager, has twenty-eight years, and there were others with twenty-four down to ten years. The gathering was one of the largest ever held.

Wilkie G. Fowler is severing his connection with the Gutta Percha & Rubber, Ltd., Toronto, Canada, effective January 1, 1928. He has been connected with the above company for over thirty years, holding various positions, the past ten years as manager of the Pacific Coast Division with headquarters at Vancouver, British Columbia. Mr. Fowler plans to take a vacation before making any new connection.

BRAZILIAN TIRE MARKET

Tires are the most important rubber products sold in Brazil, according to the Department of Commerce, and United States, Great Britain and France are active in the market. Of the 267,136 casings imported during 1925, 91,911 were from the United States; 47,233 from Canada; 53,322 from the United Kingdom and 74,670 from France. In 1926 from a total of 317,196, 78,128 were supplied by the United States; 81,460 by Canada; 44,538 by United Kingdom, and 113,070 by France. For the first six months of 1927, the United States supplied 107,766 of a total of 268,435; Canada, 54,960; United Kingdom, 26,319; and France, 79,390.

At the present time only Great Britain and Argentina surpass Brazil as importers of American automobile casings, and the McKenna duties, it is believed, will soon lower the British standing.

Automobile registration increased 27 per cent from January 1, 1926, to January 1, 1927, practically trebling the figure for 1924.

A Compound Which Is Applied to the outer side of a tire carcass and is said to afford a semi-hard rubber undertread that is not easily punctured is made of raw rubber, 100 parts; magnesium carbonate, 20 (or from 10 to 75) parts; aniline, 2; sulphur, 10, or more, parts. Other stiffening ingredients may be used instead of magnesium carbonate.

The Rubber Industry in Europe

Great Britain

The Rubber Industry Bill, introduced to the House of Commons recently aims to provide funds for the Research Association of British Rubber & Tire Manufacturers, by contributions from all rubber manufacturers in the United Kingdom and Northern Ireland amounting to not more than 1/25 of a penny per pound on all rubber used by them in the usual crude state or in the form of latex.

Research Association

The Research Association was established in 1920 and was supported, partly by voluntary contributions from individual manufacturers and partly by a grant from the government. In 1925 the association got a block grant of £2,000, to diminish by £400 each year so that by 1929 government aid will cease. The association is naturally anxious to be established on a firm financial basis by that time, hence the bill. The proposal has the backing of 85 per cent of the total capital, or about £44,000,000 out of total capital of £50,000,000. The rates will be levied so that the total contributions will average £15,000 per year, the rate depending on actual consumption during the preceding year. The bill is limited to five years.

The Research Association has laboratories at 105-107 Lansdowne Road, Croydon, where it carries out research work in cooperation with the rubber industry. Some of the problems handled are the investigation of the swelling of rubber in liquids, examination of the properties of the principal compounding ingredients of rubber, and of the principal accelerators of vulcanization. The Research Association further collects and distributes specialized information to its members, while in addition a summary of current rubber literature is issued monthly.

From time to time special subjects of a commercial or technical nature are treated in circulars which are also available to members. In the library are complete sets of the important technical and scientific publications dealing with rubber, a fine collection of books on all subjects connected with the rubber industry, a file of British and foreign specifications for rubber goods and a large number of pamphlets and reprints. It is interesting to note that the various government departments frequently turn to the Research Association for advice on technical questions, tests for examining rubber goods and to develop improved materials for service use.

Shareholders' Complaints

Rubber shareholders have for some time past been very much disgruntled with conditions in the planting industry. Profits of rubber companies for the past twelve months, in a good many cases, show substantial reductions and dividends have naturally been heavily cut down. Shareholders have seen this coming and have therefore been disposed to be critical, and a steady stream of letters of advice and protest has been pouring in at newspaper offices. Some writers protest vigorously against the practise of certain firms to sell forward well below the pivotal price, and since the market has improved of late, there will be more complaints from those who know that companies they have invested in have entered contracts to supply rubber at under 1 shilling 6 pence per pound.

Another cause for complaint is that so many concerns are using a large part of the profits to finance new planting, which under present conditions is considered reckless in the extreme, to say nothing worse. Again, it is urged that all connected with the rubber industry buy rubber goods as Christmas gifts and otherwise set the example of using more rubber goods, only of British make of course. One writer was pleased to state that a hot water bottle purchased last winter, to his great surprise had to be replaced in November, but that his surprise gave way to understanding when he discovered the article was made in the United States.

Of course advice to buy more rubber goods when these are comparatively inexpensive is good; and advice not to plant in a period of depression may be sound; but if as a result of increased use of rubber goods without adequate raw supplies to draw upon, crude rubber goes way up and manufactures follow suit, demand for rubber articles would slacken appreciably, and then presumably manufacturers who had adjusted themselves and their works to the previous heavy demand, would in their turn have to appeal to government for relief.

Institution of Rubber Industry

The success of meetings of the Institution of the Rubber Industry that have been held in Edinburgh and Glasgow during the last two years has led to the formation of a Scottish Section which was inaugurated at a meeting held on November 22 at the Caledonian Hotel, Edinburgh. A provisional committee was elected consisting of the following members of the Institution: A. Ryan, Ioco Rubber & Waterproofing Co., Ltd., chairman; W. G. Martin, North British Rubber Co., Ltd., honorary secretary; J. Gillan, Campbell Achnach & Co., Ltd., E. P. Rydings, Ioco Rubber & Waterproofing Co., Ltd.; R. Wheatley, Victoria Rubber Co., Ltd.; and D. Currie, William Currie & Co., Ltd.

The following program of papers was arranged for the session: Edinburgh, November 22 (Inaugural meeting), "The Relation between the Cotton and Rubber Industries," by R. Treusdale; Glasgow, December 7, 1927, (joint meeting with the Society of Chemical Industry), "Some Features of Sulphur for Rubber Manufacture," by D. F. Twiss, and "Naphthas and their Uses," by Cecil Chapman. Glasgow, February 22, 1928, "Heat Transference in the Rubber Industry," by Colin Macbeth. Edinburgh, March 12, 1928, short papers night, "Some Notes on Two-Accelerator Effects," by E. Anderson; "Factory Observations," by J. A. Watson; "Checking Rubber Chemicals," by J. A. Robertson; and "Molded Rubber Goods," by R. Clark.

British Reclaiming Industry

The proportion of reclaimed to new rubber consumed in the United Kingdom is comparatively small. The total British consumption of crude rubber is about 40,000 long tons per annum, whereas the amount of reclaim used by British manufacturers is at present only some 3,500 tons. Reclaimed rubber is used chiefly in the manufacture of tires for bicycles, motor cycles, and baby carriages, in proofings for waterproof fabric, footwear, and mechanical goods. There is comparatively little demand for automobile tires and tubes in the composition of which reclaim enters and no British made second quality tires have established themselves, on the market here, which explains why the use of reclaim for this purpose is strictly limited.

There are at present seven companies which manufacture reclaim exclusively, though some also produce ground waste and ebonite dust. Besides these there are four or five other companies which

reclaim rubber but the output is used by them to manufacture finished goods. It is estimated that all the British reclaimers together have a productive capacity totaling 9,000 to 10,000 long tons annually, but the present actual production is estimated at between 5,500 and 6,500 long tons, two thirds or which are used in the country, while the remainder is exported chiefly to Europe. Interest in reclaim is increasing and British manufacturers have started extensive research work in this field.

Rubber Paving

Rubber Roadways, Ltd., and Universal Rubber Paviors, Ltd., made ample use of the opportunity offered them to make propaganda for rubber paving at the Public Works, Road and Transport Congress and Exhibition held at the Agricultural Hall. The former organization, founded in 1915 under the auspices of the Rubber Growers' Association, to investigate and develop new uses for rubber, particularly in road paving, had on view a number of recent types of rubber paving blocks besides blocks taken up from several early experimental sections. It also distributed an illustrated pamphlet going over the history of paving and showing photos of the Leyland, North British, Gaisman, Cowper and the Cresson rubber blocks.

Universal Rubber Paviors showed the Gaisman Block, which they manufacture. These measuring 10⅜ by 8⅝ by 4¼ inches, have a rubber cap about ⅝ inch vulcanized to a brick and have been used in New Bridge street, London, where 700 yards were laid in October, 1926. They are laid on a sand bed over 12 inches of concrete and jointed with Rubgrip, a patented preparation of the concern said to have unusual properties of adherence to brick, stone, concrete, etc. Up to the present the blocks have shown remarkable resistance to the strain of heavy traffic. These blocks are also used to form permanent white lines for the regulation of traffic.

Rubber Amalgamation

The root of the trouble in the rubber producing industry, as has been pointed out by various authorities and at different times, is the lack of proper organization. Of late, amalgamation as a remedy has been freely discussed and at a recent meeting of the Amalgamated Rubber Finance Co., Ltd., the chairman, James Fairbairn, discussed the matter rather fully. He advocated the consolidation of estate agency firms and the merging of rubber producing companies sufficiently close together to make for really efficient management. He stated that 100 units control British rubber estates in the East, and that control would be much better if the number of units were cut down to eight or ten, or even twenty. What he had to say evidently carried with it the full approval of the shareholders present.

British Notes

Fibrok Products, Ltd. (in liquidation), manufacturer of fibrous crepe products, London, reports total liabilities to unsecured creditors were £3,099, while the assets, after deduction of preferential claims totaling £193, were £2,807 10 shillings 8 pence leaving a deficiency of £292. If it were possible to sell the business as a going concern, the creditors might get 20 shillings in the pound. The company got into its present situation through lack of sufficient capital.

The Firestone Tire & Rubber Co., to judge from a letter reported to have been received from a firm of London real estate agents by the Stone Urban District Council, is looking for a suitable factory in the Midlands with an area of 20 to 40 acres of land.

Rubber Footwear. The application for the act requiring all rubber footwear entering the United Kingdom to be marked was up for consideration by the standing committee appointed for the purpose. The India Rubber Shoe Manufacturers' Association found it impossible to be represented at the inquiry and it was decided to withdraw the application.

Sweden

The official statistics of Sweden's rubber trade during 1926 have just been published and the following table has been compiled from the data available:

	Imports		Exports	
	Kilos	Krona	Kilos	Krona
Crude rubber and gutta percha	2,086,186	8,507,105	2,928	11,988
Waste and old rubber	49,689	17,309	267,265	52,405
Rubber dough or solution	46,013	99,843	73,009	120,626
Rubber thread	13,998	178,364	.....	.....
Packing material, etc.	208,275	681,755	1,139	14,692
Buffers, also heels and soles	242,613	1,043,186	17,413	99,292
Solid tires	93,924	349,244	15,351	62,010
Hose	30,661	97,885	3,921	21,391
Belting	234,278	1,436,813	25,220	144,368
Rubber footwear	191,887	977,062	628,762	4,186,230
Cycle covers	478,722	2,513,291	1,139	5,611
Automobile tire covers	1,214,172	7,285,032	2,302	19,729
Hard rubber and hard rubber goods	66,899	504,483	107,395	517,118
Rubber insulated cables and wires	269,409	712,924	33,216	94,451
Rubber balls	6,407	35,239	77,735	400,343
Fabrics combined with rubber	204,898	1,548,464	480	5,057

The chief sources from which Sweden drew her imports of manufactured rubber goods were Germany, Great Britain, America and France. Most of the hose, hard rubber goods, fabrics combined with rubber, insulated cables and wires, as well as a good share of the packing were supplied by Germany. England supplied most of the rubber thread, solid tires, belting, (in the two last instances closely followed by America), cycle covers and balls. America enjoyed the lion's share of the imports of automobile tires (742,599 out of 1,214,172), rubber footwear, and buffers, heels and soles. The chief imports from France were tires and tubes. Among the exports, it is interesting to note that besides footwear, which heads the list, hard rubber and manufactures thereof, and also balls figure conspicuously. There are further comparatively high figures for exports of belting and insulated wires and cables, but part of this probably consists of reexports.

RUBBER FOR RAYON-SPINNING MOTOR

An English patent has recently been issued to S. Dale and the Metropolitan-Vickers Electric Co. for a new electric motor for use in the manufacture of rayon. The flange on the casing is secured to a fixed support through the medium of a resilient rubber ring, which serves to prevent vibration being transmitted from the spinning frame to the motor and vice versa. In a modification of the machine, rubber knobs, instead of the resilient ring, may be distributed around the frame.

CZECHO-SLOVAKIA

It is reported that the T. and A. Bata concern of Prague has obtained sole selling rights of the products of the Russian Rubber Trust for Czecho-Slovakia, Germany, Austria, Hungary, Italy, Yugoslavia, Rumania and Bulgaria. It seems that an agreement has been made between the parties concerned that is to run for a number of years. The Bata concern is well known in Czecho-Slovakia and in Central Europe as wholesale dealers in all materials connected with the footwear trade.

DENMARK

From Copenhagen comes the report that Danske Oliemoller has sold to a British group the world-wide right to exploit the Nyrop process for drying and producing in powder form milk, soap, chocolate and rubber latex. Besides cash, the Danish firm is to receive ordinary shares in a company yet to be formed.

Germany

The Tire Industry

The figures concerning the German tire industry during 1926 just published by the Government Bureau of Statistics, strikingly illustrate the falling off of business in Germany in that year. The number of tire factories was 24, against 33 in 1925. This decrease was due to the reorganization measures undertaken in that year largely as a result of the unfavorable economic situation. A number of smaller plants decided to abandon the manufacture of tires owing to the changes in technique that have been taking place. Most of the factores are in Prussia, the number being given as 12. 5 were in Hessen, 2 in Baden, while Bavaria, Wurttemberg, Thuringia, Waldeck and Hamburg each had one.

Side by side with the cutting down of the number of works, we find a decrease in the number of employes in the industry, which was especially notable in the first half of the year under review. In January, 1925, we find 9,692 persons employed in the manufacture of tires; the peak was reached in April of the year when the number had grown to 12,753. By the beginning of October, there were 10,394 only. Apparently employment decreased rapidly after this date, for 1926 begins with but 6,810 persons working in tire factories. The situation, however, improved and on October returns show that there were 7,813 workers engaged in the industry. The total number of hours put in by the workers in 1925 was 23,103,736 but dropped to 15,982,344 hours in the following year. The total amount in wages paid out in 1925 came to 17,602,000 marks as compared with 13,296,000 marks in 1926, which would seem to indicate that there had been an increase in the rate of pay during 1926.

Naturally, a decline in the value of raw materials in 1926 is also indicated, although the difference of 31 per cent as compared with 1925 is partly due to the fact that various raw products, particularly rubber, underwent a drop in price. The total values for the two years were 140,000,000 marks and 96,300,000 marks respectively, crude rubber in 1926 being represented by 58,900,000, marks, fabric by 22,700,000 marks and chemicals, steel rims, etc., by 14,700,000 marks.

Output and Sales

The tire output in 1926 was valued 164,564,000 marks, while total sales came to 174,153,000 marks against 208,130,000 marks for output and 210,539,000 marks for sales in 1925. Most of the tires produced went for home consumption. Business with foreign countries was strictly limited owing chiefly to high import duties abroad, nevertheless an increase was to be noted in some lines. Thus pneumatic tires for passenger cars and delivery wagons rose to 188,382 from 132,894; giant pneumatics increased from 2,568 to 5,146; and cushion tires were 5,489 instead of 4,834. At the same time production and home consumption of these types of tires showed more or less marked falling off, except in the case of the elastic tires which remained practically stationary. The most marked decrease both in output and sales was found in the case of solid tires, as was to be expected.

Raincoat Styles

The succession of rainy summers with which the world on the whole has been favored in recent years has greatly stimulated the creative genius as far as suitable outer garments are concerned and German manufacturers have not been behind in this respect. Latest models show a great variety of fabrics in many colors employed in a wide range of highly attractive models. Silk, crepe de chine, duvetine, gabardine and other woolen goods in plain colors, plaids and checks, rubberized waterproofed or with detachable waterproof linings, are made up into smart cape, belted or straight models which feature raglan sleeves besides the usual set-in sleeves. Many have collars, revers and cuffs of contrasting materials. One particularly attractive model shown was of rubberized velvet in leopard skin design, thus combining a sporty exterior, and warmth with its essentially waterproof nature. Modish hats of rubberized leather or of the same materials as the coat as well as pocketbooks with galalith frames usually complete the new rain outfits.

Something quite new is the long, all-rubber gaiter with lining of some knitted fabric. It is fastened by snap-buttons and supplied in several sizes in brown and grey. Another type, but only half as long, and with a different fastening, but also lined, comes in pale grey and beige.

While on the subject of rainproof and weatherproof garments, it may not be out of place to mention that the low arctic for women and children that became popular last winter, has been taken up by local rubber manufacturers too.

Philipp Penin A.G.

Reports regarding the affairs of the Philipp Penin A. G., Leipzig, state that at a recent meeting it was decided to continue operations for the time being, although on a very limited scale. There are fairly considerable stocks of finished and semi-finished goods on hand yet and it is desired to work these off. Owing to the confusion in the firm's affairs, and also because a number of agreements with other firms have to be straightened out, a survey of the status of the concern is at present impossible.

However, it is learned that the agreement with the Gummiwarenfabrik Otto Dillner has been dissolved, which lets the latter firm out of any proceedings that may be decided upon. The late Otto Dillner, who was the owner of the Otto Dillner works and who died quite recently, had been elected general director of the Penin company at the time when the fusion between the latter firm and the Leipziger Gummiwarenfabrik vorm. Julius Marx, Heine & Co. took place.

Rubber Consumption

Germany's consumption of crude rubber during the first nine months of 1927 shows a considerable increase as compared with that for 1926, the figures being 278,119 quintals, value 113,725,000 marks, and 150,203 quintals, value 76,746,000 marks, respectively. Most of the rubber came from the Dutch East Indies, then came the British colonies and third was Brazil. Against this increase in consumption of rubber must be placed a slight decrease in the exports of manufactured goods which amounted to 123,265 quintals, value 75,381,000 marks, against 126,867 quintals, value 76,761,000 marks over the corresponding period of 1926.

AN INTERNATIONAL AVIATION EXPOSITION (Internationale Luftfahrt Ausstellung, briefly known as ILA) is being organized by the National Association of the German Aviation Industry, and will be held in Berlin, March 28 to April 11, 1928. The aim of the exposition is to make propaganda for the idea of peaceable aviation of an international basis. All the important types of aircraft, for commercial purposes, sport or practice, in addition to motors and all kinds of accessories, including rubber specialties, will be shown.

ARRIVALS DURING THE FIRST SIX MONTHS of 1927 at Manaos were as follows: 3,998 tons, upriver fine rubber; 285 tons medium; 285 tons weak fine; 144 tons special coarse; 48 tons scrap (inferior coarse); 802 tons ordinary scrappy coarse; 2,783 tons caucho ball.

The Rubber Industry in the Far East

Malaya

W. Leonard Braddon, in the *Straits Times*, submits a scheme for the rescue of rubber which at least has the merit of being bold. This is not the first time that Mr. Braddon has published plans to aid the rubber industry in Malaya. If memory serves us right, he propounded a scheme just before the Stevenson Scheme was adopted that in its essentials was very similar to the one he now puts before the planting world. Nevertheless, the main provisions will bear repeating.

To begin with we are told that the Governor in his budget speech in Singapore showed that the value of rubber exported for the year ended July, 1927, was $300,000,000 (Straits currency) less than in the preceding year, although 60,000 tons more were exported. This loss is felt throughout the country and the slump is daily becoming worse. It is evident that control of the rubber market is necessary. Restriction according to the Stevenson Scheme has failed; in order to be effective, restriction should bring about a definite shortage, and this has not taken place; the purchaser should be encouraged to buy, but under the provisions of restriction as it is enforced to-day, the more a buyer takes the more he has to pay; instead of the seller fixing the price, it is actually the buyer that does so; finally, at present the burden of restriction is borne only by a section of the producers, although all benefit. Mr. Braddon's scheme would change all this.

The Insurance Association

According to Mr. Braddon's plans, a certain number of owners are to be elected to represent the whole industry and to be recognized by the government. They are to form an Insurance Association and to act on behalf of all producers who will of course be members of the association. Government is to give the association power to restrict export to any limit, to fix a minimum price below which members may not sell rubber for export, and finally to collect a cess on all rubber exported, the funds thus collected to be used to support producers while a part of their export was curtailed. In return the association would guarantee each member a price of 1 shilling 9 pence per pound for all the rubber which he was entitled to export up to 60 per cent of his output. For instance, it might be decided to cut exports to 30 per cent, thereby taking 8,000 tons more off the market per month and putting prices up immediately. Any excess over the guaranteed 1 shilling 9 pence realized on the allowable 80 per cent, would either be retained or go to liquidate part of the 1 shilling 9 pence due on the remaining 30 per cent not exported, the whole of which would otherwise have to be paid by the association.

Fixing Prices

To function properly, the association would need considerable funds, which would be raised as stated above by a cess on all rubber exported. Thus, suppose the monthly exports to be 8,000 tons and a cess of 3 pence per pound is decided upon, the association would have at its command £2,688,000 with which 6 per cent could be paid on over £44,000,000. Now as to price fixing. Of the present world consumption of 600,000 tons, 215,000 could be obtained from the Dutch Colonies, 35,000 tons from all other sources and possibly 200,000 tons from reclaim, the remaining 150,000 tons would have to come from Malaya and Ceylon, and this is where the British producers get their opportunity to bargain, for it is not their object to sell only part of their crop but their entire crop of 400,000 tons. Therefore the proposition put before buyers would be, if they take all the crop from the restriction area, they would have to pay a certain fixed price, say 2 shillings per pound, but if they take less, they will have to pay proportionately more, so that if they buy part of their supplies elsewhere they will be unable to average all their purchases at a price below or as good as the price they would have had to pay for the entire amount obtained from the British producers.

Rubber Smuggling

It seems that smuggling is now at last being efficiently handled. It took time to convince authorities that the leakage through that agency was as serious as many claimed it to be. But it now looks as though the alarmists have at least been given the benefit of the doubt. At all events the customs system of Johore, from where most of the smuggling took place, is to be completely turned over to the Federated Malay States Preventive Service, and much is expected from the change.

Rubber Research Institute

For the first time since its formation, the Rubber Research Institute of Malaya sent scientists to lecture at a meeting of planters. This was at the last general meeting of the Batang Padang Districts Planters' Association, when Colonel Summers lectured on "Improvement of the Yield of Hevea," and Dr. J. R. Weir discussed "Some General Principles in Rubber Pathology."

Restriction Changes

On the whole, it is doubtful whether the restriction regulations for the new quarter are regarded as satisfactory. In many quarters, more vigorous measures had been looked for, and the fact that maximum production has not been touched upon and that the validity of coupons remains practically the same has caused a certain amount of disappointment. It had been expected that after all the discussion of the matter and the fact that the 60 per cent quota had failed to effect the market in the desired direction would at least lead to a removal of the clause fixing 60 per cent as a minimum. Then too it has in many quarters been pointed out that for restriction to function in a fair manner the reintroduction of a maximum production would be necessary. It has been claimed, for instance, that the older estates, many of which are in Selangor, are unduly, if unintentionally, favored by the present system. These estates were at the height of their production at the time restriction was introduced, and their outputs were obtained by obsolete tapping methods which at the time resulted in a yield of around 600 pounds per acre, although obtained to the detriment of the trees. And it is on the basis of these yields that the estates have been assessed.

New Tapping Standard

Now according to the new rules regarding tapping system to be used, assessments on the whole will be reduced by one-sixth, which will be felt by the newer estates but which will not affect the older estates to any appreciable extent. They would have had to follow a more conservative method of tapping anyway to make good the reckless tapping of the past; it is consequently the opinion that the above estates have nothing to lose and everything to gain by this modification of the tapping system. Therefore, it is considered that the reintroduction of a maximum standard of say 450 pounds per acre would have been fairer, for there are really few estates

that could go on producing more than this from their entire mature area for any length of time without detrimental effects.

From this one may deduce that the reduction in output due to the altered tapping standard will probably fall far short of expectations, that in practice it will be found to have very little result. Another point of view with regard to this matter is expressed by the *Malayan Tin and Rubber Journal* which concludes that since Assessment Committee officers have hitherto failed to gage the productive capacity of an estate correctly, they can hardly be expected to supervise so elaborate a detail as tapping for the purpose of checking future allowances.

Netherlands East Indies

The *Mededeelingen* of the Medan Commercial Association publishes an interesting review of the rubber situation. According to the data contained therein, rubber exports from the Dutch East Indies during the first half of 1925, 1926, 1927 were 110,916, 112,868, and 133,384 metric tons respectively. So that the increase during the first half of 1926 was only 2,000 tons as compared with the 1925 figures, whereas the increase in 1927 against 1926 came to almost 21,000 tons, or 18 per cent. Of course, these figures include native rubber, and it has been reported by various authorities that the percentage of moisture and dirt in native rubber during the first half of 1927 underwent an increase, so that the amount to be deducted on this head is more likely to be 40 per cent than 30 per cent. Nevertheless, the 1927 increase is marked. The comparative figures for the first half of 1925, 1926, 1927 are, 61,330, 56,372, and 70,260 tons; when allowance has been made for impurities, etc., the figures are found to be, dry weight, 38,000, 35,000, and 43,000 tons respectively. On this basis, the total exports from the Dutch Colonies, in dry weight, comes to 87,586 tons for the first half of 1925, 91,496 tons for 1926, and 106,124 tons for 1927. The exports of estate rubber have increased by 27 per cent since 1925, while those of native rubber have gone up 13 per cent. From the foregoing figures it has been calculated that the Dutch exports for the whole of 1927, figured in dry weight, will probably be around 220,000 tons, against 206,000 tons, dry weight, in 1926.

Mildew Disease

In a recent issue of the *Archief voor de Rubbercultuur*, G. A. Reydon discusses the mildew disease in East Java where it is rather widespread and is causing a certain amount of anxiety. The disease has also been observed in budgrafts and seedbuds to the extent of about 17 per cent. On over 6 per cent of the estates infected by the disease, the managers ascribed a decrease in output as being due to its ravages. In the district of the Malang Experiment Station, it is found that trees that winter later suffer more than those that winter earlier, that is about May. It was further observed that the rainfall during the East monsoon had, in the infected area, been below that in the healthy districts, that is dryness apparently favors the incidence of the disease. The trouble was found to be more serious in low-lying areas than on estates at a much higher altitude, while finally it was more prevalent on the southern than on the eastern slopes of the mountains.

Pruning Backward Trees

The effect of pruning crowns of backward Heveas in combination with manuring and similar measure of estate improvement was one of the subjects treated at a meeting of the Soekaboemi and Rubber Planters Association, by the chairman. He had experimented on a backward, in fact a practically abandoned area, covering about five bouws, where about the middle of 1924 the crowns of the Heveas were cut back until only the stems and parts of the main branches were left. A number of the trees had dead crowns before the experiment was begun, and the entire block had a very sorry appearance, but results of this drastic pruning were amazing. To be sure 10 per cent of the trees were lost due to the experiment, but the remaining trees recovered rapidly and after only one year showed entirely new, full and healthy crowns. In other parts of East Java, the test for some reason or other failed, but on this particular area, which, after the pruning, was manured in May, 1925, and again in July, 1926, the trees, which had been practically abandoned for six years, made so good a recovery that they could be successfully tapped again in October, 1926, and now give excellent yields. The costs of pruning and later tarring the wounds came to a total of from five to eight guilders per bouw (bouw=about 1.75 acres).

Dr. Bobilioff, who was present at the meeting, commenting on the experiment, agreed that excellent results could undoubtedly be obtained by the methods described in similar cases. Up to the present the point has not been studied scientifically, but he felt sure that the method would be more widely adopted in the future. It is a pathological question, and it was only through more practical tests that a definite conclusion on the subject could be reached.

World Production 1927

Exports from Malaya during the first half of 1927 also show an increase over those of 1926, the figures having been 196,861 tons, and 181,488 tons, respectively. At the same time the foreign imports into Malaya were given as 87,419 tons in 1927 against 66,278 tons in 1926 so that it may safely be assured that exports from Malaya itself showed no reduction owing to restriction. The exports from Malaya, Ceylon and Netherlands East Indies, not including the shipments to Malaya, came to 216,053 tons in the first half of 1925, 267,635 tons in 1926, and 291,744 tons in 1927.

Shipments from Malaya are expected to show a decrease for the second half of 1927, and it is calculated that with 60 per cent quota on standard of 413,000 tons, exports from the restriction area during that period will be about 125,000 tons. The Dutch, it is estimated, will surely export 120,000 tons dry rubber at the same time while the output to be expected from other sources for the whole year is taken as 75,000 tons. All these figures together yield a total of 607,000 tons, which it is considered will at least be the amount found to have been produced in 1927, if not more. Since the world production of rubber in 1926 was figured at 640,000 tons, and that for 1925 at 502,000 tons, it cannot be said that the decrease in output during 1927 has been very marked.

Exceptional Mother Tree

There is a Hevea mother tree in the Cultuur-tuin of Buitenzorg, Java, recorded as number 88, which has become widely known throughout the island for its excellence as a source of budgrafts. It has been adopted by the Central Rubber Experiment Station as standard for comparisons with other clones. This mother tree is now 19 years old; it is a seedling of No. 3, which is also highly satisfactory for budding purposes. The budgrafts of No. 88 are now nine years old and have been tapped for the last 3½ years during which time the yields have been uniformly good. In their ninth year, these buddings give an average of 3¼ kilos (kilos=2.2 pounds) per tree when tapped over one-third of the circumference at 50 c.m. above the joint where scion meets stock, the tapping taking place on alternate days. At present the stand of trees in question is rather too closely planted, there being 278 trees per hectare (hectare=about 2.45 acres). No. 88 has the additional advantage of growing rapidly and evenly so that the budgrafts generally reach the tapping stage about the same time.

Rubber Patents, Trade Marks and Designs

United States

November 8, 1927*

1,648,175 GOLF CLUB PROTECTOR. C. W. and L. J. Hamel, both of St. Louis, Mo.

1,648,218 TIRE. E. Deitenbeck, Berlin, Germany.

1,648,391 PACKING. W. O. Farrington, Los Angeles, Calif., assignor to The Garlock Packing Co., Palmyra, N. Y.

1,648,464 BRASSIÈRE. W. Rosenthal assignor to Enid Mfg. Co., both of New York, N. Y.

1,648,608 BATHING CAP. J. P. Devlin, assignor of one half to A. Polakoff, both of Albany, N. Y. (B. T. Devlin administratrix of said J. P. Devlin deceased.)

1,648,633 ARCH SUPPORT. P. E. Boehlke, assignor of one half to H. E. Oleson, both of Dubuque, Ia.

1,648,729 TIRE PATCH. P. E. Hawkinson, Minneapolis, Minn., assignor to Ke Haw Ke Mfg. Co., a corp. of Minnesota.

1,648,825 TIRE DEFLATION ALARM. T. P. Roth, Louisville, Ky.

November 15, 1927*

1,648,970 SWIMMING BELT. W. Strelow, Berlin-Halensee, Germany.

1,649,027 SHOE LACE. C. H. Gunn, San Francisco, Calif.

1,649,052 SHAVING BRUSH. H. Zimmet, Hamburg, Germany.

1,649,074 GLOVE. R. C. Palicki, Toledo, O.

1,649,080 LOOM ROLL. T. S. Ross, Allentown, Pa.

1,649,089 PATTER. H. G. Volckening, assignor to C. K. Volckening, both of Brooklyn, N. Y.

1,649,092 TIRE. F. Barcena, Vigo, Spain.

1,649,139 CONDUIT. C. L. Sonen, assignor to The Bassick Mfg. Co., both of Chicago, Ill.

1,649,166 BUMPER. A. A. Kahil, Brooklyn, N. Y.

1,649,245 GOLF TEE HOLDER. E. J. McGraw, Saginaw, Mich.

1,649,294 HEEL. A. M. Eichorn, assignor by mesne assignments, to Evernu Corp., both of New York, N. Y.

1,649,321 TIRE VALVE. J. A. Overlander, New York, N. Y.

1,649,339 DOOR CHECK. J. M. Conley, Stockton, Calif.

1,649,458 BLADDER. T. H. Fewlass, Highland Park, Mich.

1,649,530 PUMP. L. Holsinger, Faribault, Minn.

1,649,633 CORSET. O. C. Wiese, Newton, Mass.

1,649,723 TIRE CORE. W. J. Oakley, Brooklyn, N. Y.

1,649,770 BALLOON. T. W. Miller, assignor to The Faultless Rubber Co., both of Ashland, O.

1,649,773 ARTIFICIAL LIMB. H. M. Witmyer, assignor of one third to J. H. Nissley and one third to H. E. Trout, all of Manheim, Pa.

November 22, 1927*

1,649,804 TIRE VALVE STEAM COVER. E. L. Boyd, Garner, Tex.

1,649,840 SKATE SHOE COVER. N. J. Matthews, Lakewood, O.

1,649,862 TIRE FLAP. R. H. Schwartz, Cleveland, O.

1,649,894 METAL WOOL ARTICLE. C. Field, Brooklyn, N. Y., assignor to Brillo Mfg. Co., Inc., a corp. of New York.

1,649,944 RIM. W. N. Booth, Detroit, Mich.

1,650,107 TIRE. J. T. Auger, assignor of one-third to E. O. Voyer and one-third to R. H. Monahan, all of Minneapolis, Minn.

1,650,200 TOOTHBRUSH. W. R. Dougan, Somerset, Pa.

1,650,223 GOLF BALL PACKING. G. Martinez, New York, N. Y.

1,650,271 TIRE CUSHION. A. J. Harpstrite, Los Angeles, Calif.

1,650,420 TIRE PATCH. R. D. Boyce, Hendon, London, Eng.

1,650,461 ANTENNA DEVICE. A. R. Nilson, Brooklyn, N. Y.

1,650,468 DOLL'S HEAD. I. A. Rommer, Brooklyn, N. Y.

1,650,502 TIRE VALVE STEM. A. Ehrler, assignor of forty-nine one-hundredths part to E. Guerci, both of New York, N. Y.

1,650,509 SPATTEE. L. Goldner, Brooklyn, N. Y.

1,650,511 HEEL. J. E. Grosjean, Lima, O.

1,650,548 FLY SWATTER. F. B. Sullivan, Oakland, Calif.

November 29, 1927*

1,650,743 HEADREST. E. Seckbach, Gorlitz in Silesia, Germany.

1,650,817 SHOE SOLE. G. W. Blair, assignor to Mishawaka Rubber & Woolen Mfg. Co., both of Mishawaka, Ind.

1,650,914 FOLDING BOAT. N. Straussler, Piccadilly, Eng.

1,651,000 ARTIFICIAL FOOT. A. E. Rosenthal and W. E. Clarin, assignors to Beacon Steel Furniture Co., all of Chicago, Ill.

1,651,022 RUBBER HOSE. W. H. Fulton, Irvington, N. J., assignor by mesne assignments, to Titeflex Metal Hose Co., a corp. of New Jersey.

1,651,211 TIRE. L. Lambert, Biddeford, Me.

1,651,226 BATTERY CELL CONTAINER. L. J. Pearson, Wyncote, assignor to Philadelphia Storage Battery Co., Philadelphia, both in Pa.

1,651,277 PACKING. C. R. Hubbard, Newark, assignor to The Garlock Packing Co., Palmyra, both in N. Y.

1,651,331 TIRE. A. Horwitz, New York, N. Y.

1,651,345 SHOE TIP. E. Frank. Berkeley, Calif.

December 6, 1927*

1,651,375 TIRE. J. T. Clark, Provo, Utah.

1,651,437 CUFF LINK. S. Bochonok, Pittsburgh, Pa.

1,651,568 STAMP. M. L. Willard, assignor to The Superior Type Co., both of Chicago, Ill.

1,651,631 SHOE PROTECTOR. L. M. Radway, New York, N. Y.

1,651,769 TIRE COVER. W. P. Hammond, Scarsdale, N. Y.

1,651,960 TOY. T. W. Miller, assignor to The Faultless Rubber Co., both of Ashland, O.

1,651,962 NUT. T. W. Miller, assignor to The Faultless Rubber Co., both of Ashland, O.

1,652,156 STOPPER. C. J. R. Beauchamp, London, England.

* Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

Dominion of Canada

November 8, 1927

275,175 KISSING DOLL. J. A. Bolton, Sayville, N. Y., U. S. A.

275,185 SURGICAL BANDAGE. J. A. Duckett, Montreal, Que.

275,216 EXERCISER. R. H. Noe, Memphis, Tenn., U. S. A.

November 15, 1927

275,433 TIRE. E. Urdang, Johannesburg, Transvaal, South Africa.

275,435 PULLEY. J. J. Voorhees, Jersey City, N. J., U. S. A.

November 22, 1927

275,552 BALL. G. W. Beldam, Ealing, County of Middlesex, Eng.

275,569 BATHING CAP. M. Hart, Vancouver, Wash., U. S. A.

November 29, 1927

275,772 GOLF TEE. R. J. Copeland, Toronto, Ont.

United Kingdom

November 2, 1927

277,074 LATEX CONTAINER. E. Hopkinson, 1790 Broadway, New York, N. Y., U. S. A.

277,150 PUNCTURE REPAIR PLUG. A. S. Bowley. Werter Rd., Putney, London.

November 9, 1927

277,346† PNEUMATIC TIRE. Soc. Francaise B. F. Goodrich, 221 Boulevard de Valmy, Colombes, Seine, France.

277,402 LICENSE HOLDER. F. J. Davis, 266 Vauxhall Bridge Rd., London.

277,484 MASSAGE APPARATUS. M. Baginski. 10 Hiddenseestrasse, Pankow, Berlin, Germany.

277,493 SOLE. Eatoughs, Ltd., Rossendale Works, and W. Alick, 248 Hinckley Rd., both in Earls Shilton, Leicestershire.

277,524 TEAT CUP. B. A. Alftren and S. L. Sundberg, 4 Upplandsgatan, Stockholm.

277,581 HEEL GRIP. H. J. Cridland, 26 King Square, Bristol.

277,664† DIVERS' DRESS. E. R. Clifford, 40 Clyde St., Croxton, Victoria, Australia.

277,700† MASSAGE ROLLER. F. Wiese, 8 Kaiserplatz, Wilmersdorf, Berlin, Germany.

Chemical patents will be found on page 72. Machinery and process patents will be found on pages 75-76.

November 16, 1927

277,770 FRUIT HOLDING SOCKET. H. Leonhardt, Sprendlingen, near Frankfort-on-Main, Germany.

277,791 DRAUGHT EXCLUDER. W. G. Bush, 26 Market St., Eastleigh, Hampshire.

277,882 MASSAGE CUP. M. Baginski, 10 Hiddenseestrasse, Pankow, Berlin, Germany.

277,890 TIRE. A. B. Peters, 810 Fourth Ave., Limoilou, Que., Canada.

277,925 BELT. L. H. Nichols, 1419 Grant Ave., Kenmore, Ohio, U. S. A.

November 23, 1927

278,058 PNEUMATIC CUSHION ALARM. C. J. Payne, 111 Church Lane, Charlton, London.

278,181 SLEEVE USED IN FABRIC TREATING APPARATUS. H. Johnson, 44 Bargrange Ave., Shipley, Yorkshire; H. Petty, 1 Sunnybank Ave., Rooley Lane and A. B. Henshilwood, 89 Upper Rushton Rd., Thornbury, both in Bradford.

278,200 UNIVERSAL JOINT. Hardy, Spicer & Co., Ltd., and E. J. Hardy, 118 Queen Victoria Rd., Coventry.

278,202 TRUSS. H. E. Cooper, 162a Adelaide Rd., Brockley, London.

278,230 HEEL. E. G. Bloser, Box 478, Philadelphia, Pa., U. S. A.

278,306† UNIVERSAL JOINT. Pneumatic Appliances Corp., 44 Wall St., New York, N. Y., assignees of A. Weiland, Neshanic, N. J., both in the U. S. A.

278,311† VALVE. I. P. Morris Corp., Richmond St., Philadelphia, Pa., U. S. A.

†Not yet accepted.

Germany

452,512. INFLATABLE TOY. Dr. Lajos Dorogi, Dr. Stefan Dorogi and Dr. Dorogi and Co., Gummifabrik, A. G., Buda-Pest, Hungary. Represented by W. Fritze, Berlin S. W., 61.

453,007. ASPIRATOR. Dr. Jakob Clemens, Wilhelmstrasse 39, Sterkrade.

453,009. PRIMARY PRODUCT. Dr. Heinrich Traun & Sohne vormals Harburger Gummi-Kamm-Compagnie, Hamburg.

Trade Marks

United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section (1) (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act, trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

November 8, 1927, Act of February 20, 1905

234,838 RED STICK—rubber tube patches. T. B. Stephenson, doing business as Red Stick Products Co., Houston, Tex.

235,095 SILVER QUEEN THE GLOVE SUPREME—gloves for household use. Murch R. Cady, Grand Rapids, Mich.

235,113 ACE—heels, soles and taps for soles. Plymouth Rubber Co., Inc., Canton, Mass.

November 8, 1927, Act of March 19, 1920

235,144 PANAMA—tires and tubes. C. Kenyon Co., Inc., New York, N. Y.

November 15, 1927, Act of February 20, 1905

235,166 THE RAINGLO — waterproofed clothing. Harris Raincoat Co., New York, N. Y.

235,190 ADAMILE—tire casings. Sterling Tire Corp., Rutherford, N. J.

235,222 TODDLE PANTS—babies' rubber pants. Marshall Field & Co., Chicago, Ill.

235,223 Square containing a shield on which is superimposed the monogram PB, beneath the shield the words: "THE TAILORED RAINCOAT"—raincoats. Plottel Bros., New York, N. Y.

235,236 Representation of a Greek runner, at the top, in the background, the word: "MARATHON"—soles and heels for boots and shoes. Marathon Rubber Co., Inc., Akron, O.

235,334 AEROBOARD—sheet material consisting chiefly of cellular rubber for structural purposes. The B. F. Goodrich Co., New York, N. Y.

November 22, 1927, Act of February 20, 1905

235,498 Representation of the sole of a foot and the word "FITOES"—shoes of leather, rubber and fabric. Cedar Grove Shoe Mfg. Co., Cedar Grove, Wis.

235,543 Representation of the ace of spades—hard rubber caster wheels. American Hard Rubber Co., Hempstead and New York, N. Y.

235,568 So-LITE—boots and shoes of rubber or rubber and fabric. United States Rubber Co., New Brunswick, N. J., and New York, N. Y.

235,605 NONOX—chemical substances used in the manufacture of rubber to prevent oxidation. British Dyestuffs Corp., Ltd., Blackley, Manchester, Eng.

235,606 CAOUTCHOL—oils used in the vulcanization of rubber. Technische Chemikalien - Compagnie G.m.b.H., Halle-on-the-Saale, Germany.

November 29, 1927, Act of February 20, 1905

235,822 Shield representing two dragons pulling on a patch which contains the words: "IT HOLDS," and beneath the patch the words: "GREEN DRAGON"—tire boots, patches, and reliners, and repair kits for tires and inner tubes. Greenville Rubber Co., Greenville, O.

235,838 MISS RAINDEAR — waterproofed clothing. Harris Raincoat Co., New York, N. Y.

235,839 DOLLY RAINDEAR—Waterproofed clothing. Harris Raincoat Co., New York, N. Y.

235,935 Representation of a wall through a hole in which appear to come the words: "THE HOLE IN THE WALL"—rubber and leather shoes. Louis Simowitz, Augusta, Ga.

235,978 Representation of a star across which is superimposed the word: "PERMA-WELD"—rubber repair kits blowout patches. Perma-Weld Mfg. Co., Philadelphia, Pa.

236,018 Double arrow containing the word "HOOD" through the center of which runs an arrow—pneumatic and cushion tires and tubes. Hood Rubber Co., Watertown, Mass.

November 29, 1927, Act of March 19, 1920

236,060 GUM-DIPPED—tires. The Firestone Tire & Rubber Co., Akron, O.

236,067 FLORENTINE—stock for shoe soles. Hood Rubber Co., Watertown, Mass.

December 6, 1927, Act of February 20, 1905

236,073 SNOWDRIFT—pulp made of ground pulverized, powdered and prepared talc for use as a filler in making paper, paint, rubber, etc. Union Talc Co. of Gouverneur, New York, N. Y.

236,082 KARUF—waterproof fabric and cotton duck. W. E. Hooper & Sons, Co., Woodberry, Baltimore, Md.

236,169 Representation of a tire in which are shown several nails, across the front of the representation are superimposed the words: "STOP-A-LEAK—puncture cures for pneumatic tires." Stop-A-Leak Mfg. Co., Los Angeles, Calif.

236,217 RIOHONDO — reclaimed rubber The Pacific R & H Chemical Corp., El Monte, Calif.

236,268 BUMPIT—desk leg protectors. R. H. Mester, St. Louis, Mo.

236,271 Fancy design containing the words: "BOWES," "SEAL FAST," "THE MINUTEMAN REPAIR KIT," and "BOWES 'SEAL-FAST' CORPORATION"—puncture and blowout sealing compounds. Bowes "Seal-Fast" Corp., Indianapolis, Ind.

236,288 VELV-O-WEB—elastic webbing in the piece. Kops Bros., Inc., New York, N. Y.

Dominion of Canada

Registered

November 8, 1927

42,676 Label margined by the representation of an endless chain and containing within the margin chain at the lower corners circles of chains surrounding varied arrangements of links—surgical dressings, rubber protectives, etc. Johnson & Johnson, Ltd., Montreal, Quebec.

November 15, 1927

42,708 Word: "TESTUS"—sheeting, heels, air beds, cushions, aprons, tires, etc. Hannon Tire & Rubber Co., Ltd., Toronto, Ontario.

November 22, 1927

42,747 Anatomical figure of a human being—shoes of leather, skins, fabric, rubber, and materials and compositions serving as substitutes for same. Field & Flint Co., Boston, and Montello Sta., Brockton, both in Mass, U. S. A.

42,789 Dark gray band longitudinally arranged around the periphery of a red tire inner tube, together with the words: "GUM SEALED," "NAIL-PROOF BAND" and the numerals: "99.9"—tire inner tubes. Matthew Stephen Hannon, Toronto, Ontario.

November 29, 1927

42,802 Word "STICK-A-SOLES"—plates or pads for attchment to soles of boots and shoes. Phillips' Patents, Ltd., 142-146 Old St., London, E.C. 1, Eng.

December 6, 1927

42,878 WORDS "CAPTAX"—vulcanization acelerators for caoutchouc. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ont.

42,883 Words: "DOMINION TIRE DEPOT"—goods made of rubber and rubber composition. Dominion Rubber Co., Ltd., Montreal, Que.

United Kingdom

November 2, 1927

482,056 Square containing the representation of a pheasant beneath which are the words: "GOLDEN PHEASANT," "WATERPROOFS" and "MADE IN ENGLAND" — waterproof and rainproof clothing, but not including boots or shoes. Pocock Bros., Ltd., 231, Southwark Bridge Road, London, S.E. 1.

482,066 DELAMOUNT—all goods included in Class 38. The Dela Rubber Shoe Co., Ltd., 2, Cambridge St., Manchester.

483,106 VO-LA-CREPE — soles. Herbert Broomfield, 72, Kingsley Park Terrace, Northampton.

484,308 Oval containing the word "JASCO"—balata and rubber machine belting. Alfred Richard Grimble, trading as James Southern & Co., Spencer House, South Place, London, E.C. 2.

November 16, 1927

476,473 MACINTOSH—tires. Chas. Macintosh & Co., Ltd., 2, Cambridge St., Manchester.

480,007 Pennant containing the word: "CENTURY"—boots, shoes and overshoes. The North British Rubber Co., Ltd., Castle Mills, Fountainbridge, Edinburgh.

483,882 Representation of a seal balancing a globe of the world—rainproof and waterproof clothing, etc. Cohen & Wilks, Ltd., Aquatite Mills, Derby St., Cheetham, Manchester.

484,641 CAPTAX — chemical substances used in manufactures, photography or philisophical research and anti-corrosives. The Goodyear Tire & Rubber Co., 1144 East Market St., Akron, O., U. S. A.

November 23, 1927

482,037 BULLSEYE — boots, shoes and overshoes. Hood Rubber Co., Watertown, Mass., U. S. A.

482,438 Circle containing the representation of a bull beneath which is a pennant bearing the word: "TAURUS"—wire with rubber or gutta percha covering. Isolierdraht Aktiengesellschaft, 54, Waengi, Thurgovie, Switzerland.

484,368 GLUBA—rubber solution. William Edwin Smith, 9, Deansbrook Lane, Edgware, Middlesex.

New Zealand

October 20, 1927

24,798 Representation of a knight on horseback, beneath the representation the word: "SAXON"—tires, inner tubes, etc. India Tire & Rubber Co., Mogadore, O., U. S. A.

25,722 VULCAN—dental rubber, etc. The Vulcan Dental Mfg. Co., Ltd., 9A The Village, Old Charlton, London, S.E. 7, Eng.

Designs

United States

73,835 TIRE. Term 14 years. Robert Iredell, assignor to The General Tire & Rubber Co., both of Akron, O.

73,942. TIRE. Term 14 years. J. L. Porter, Columbus, O.

73,974 OVERSHOE. Term 14 years. Conrad Ferrettie, assignor to Mishawaka Rubber & Woolen Mfg. Co., both of Mishawaka, Ind.

Dominion of Canada

7,716 TIRE TREAD. Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ontario.

7,730 TIRE. Dominion Rubber Co., Ltd., Montreal, Quebec.

7,740 TIRE TREAD. Gutta Percha & Rubber, Ltd., Toronto, Ontario.

7,741 TIRE TREAD. Gutta Percha & Rubber, Ltd., Toronto, Ontario.

Germany

1,006,414 HOT WATER BOTTLE. Belinde G. m. b. H., Berlin, S. W. 68.

1,006,939 BRUSH. Edith Voltz, nee Mellisch, and Richard Pinckert, Erfurt.

1,008,225. PARTS FOR CORSETS, ETC. Nathan Meyer, Schloss Strasse 4a, Bonn.

1,008,571. MASSAGE BRUSH. Georg Schmidt, Savigny Strasse, 61, Frankfurt a. Main.

1,008,623. ELASTIC CUSHIONING. Hermann Fischer vorm. Vereinigte Radiergummi-Werke, Harburg a. d. E.

1,009,288. BATHING CAP. Harburger Gummiwaren-Fabrik Phoenix, A. G., Harburg, a. d. E.

1,009,522. HEEL FOR ORTHOPEDIC PURPOSES. Klinghammer & Co., Gummiwarenfabrik, Schwelm i. W.

1,009,646. GAITER. Otto Tillman, Schwelm, i. W.

1,009,660. SPONGE FOR CLEANING AND POLISHING. Max Strasser, Bosestrasse, 3, Erfurt.

1,010,460. AIR MATTRESS. Louis Pfennig, Giessbergstrasse 24, Kassel.

Prints

United States

10,388 TOUGH FOR HARD WEAR GOOD (—WINGFOOT—) YEAR WINGFOOT SOLES. Soles. The Goodyear Tire & Rubber Co., Inc., Akron, O. Published Sept. 30, 1927.

NEW TIRE FLAP

A new tire flap especially designed for drop center rims has recently been placed on the market by the North Eastern Rubber Co., Elizabeth, New Jersey. It is a modification of the Extensor flap, manufactured by the same company, which has been sold for clincher rims.

Flap for Drop Center Rim

The new flap is very flexible, a stockinette fabric impregnated with a rubber compound being the material used in its making. It is made endless to snap over the drop center rim and wide enough to completely fill the well and extend up to the tire beads, thus protecting the inner tube against possible abrasion by contact with the metal rim. Patents have been granted the company on this flap.

RAYON FOR AUTO TIRES

In a lecture entitled "Rayon and Its Uses in the Rubber Trade," delivered before the Institution of Rubber Industry at Manchester, England, Major A. B. Shearer of Courtlauds, Ltd., suggested the practicability of using rayon in the manufacture of motor tires, if the cost factor were not too much against it. The fiber is an ideal material for proofing fabrics, Major Shearer said, has a considerable affinity for dyes, a smooth surface that dirt cannot easily penetrate, and is the most regular fiber available today.

ONE FORM OF CORE FOR MOLDING AND vulcanizing hollow rubber articles is made of sand, 80 parts; glucose, 4; water, 1 part. After the design is formed and the mixture has set, the surface may be coated with soapstone and glucose or waterproofed with varnish or sprayed metal. After the mold has been used the glucose is dissolved in water and shaken out of the cured rubber container.

Dominion of Canada Rubber Statistics

IMPORTS OF CRUDE AND MANUFACTURED RUBBER

	September, 1927		Six Months Ended September, 1927	
UNMANUFACTURED	Pounds	Value	Pounds	Value
Rubber, gutta percha, etc....	4,143,202	$1,518,876	27,059,849	$10,194,336
Rubber recovered	628,859	49,458	4,853,421	432,562
Rubber, powdered and rubber or gutta percha scrap.....	517,210	32,785	3,786,146	228,331
Balata	10	12	4,606	2,132
Rubber substitutes.....	54,422	10,298	414,762	57,870
Totals	5,343,703	$1,611,429	36,118,784	$10,915,231
PARTLY MANUFACTURED				
Hard rubber sheets and rods	5,495	$2,388	105,190	$45,999
Hard rubber tubes.....	.....	637	.....	7,306
Rubber thread not covered..	13,667	18,695	108,886	145,433
Totals	19,162	$21,720	214,076	$198,738
MANUFACTURED				
Belting	.....	$15,578	.....	$67,655
Hose	.....	13,549	.....	95,807
Packing	.....	3,832	.....	26,497
Boots and shoes.....*pairs*	8,831	18,787	38,180	64,985
Clothing, including waterproofed	.....	51,080	.....	285,950
Gloves	.....	1,176	.....	8,604
Hot water bottles.....	.....	1,772	.....	11,117
Tires, solid.....*number*	22	1,406	254	15,862
Tires, pneumatic....*number*	3,857	22,324	28,341	180,157
Tires, tubes.....*number*	4,645	7,850	25,425	53,176
Elastic, round and flat.....	.....	19,026	.....	92,907
Mats and matting.....	.....	1,842	.....	15,499
Cement	.....	6,451	.....	50,378
Golf balls.....*dozen*	190	697	35,424	148,353
Heels, rubber .....*pairs*	53,228	4,192	516,036	29,563
Other rubber manufactures..	.....	96,555	.....	649,736
Totals	.....	$266,117	.....	$1,796,246
Totals, rubber imports..	.....	$1,899,266	.....	$12,910,215

EXPORTS OF DOMESTIC AND FOREIGN RUBBER GOODS

	September, 1927		Six Months Ended September, 1927	
	Produce of Canada	Re-exports of Foreign Goods	Produce of Canada	Re-exports of Foreign Goods
UNMANUFACTURED	Value	Value	Value	Value
Crude and waste rubber....	$19,595	.....	$123,389	.....
Totals	$19,595	.....	$123,389	.....
MANUFACTURED				
Belting	$52,260	.....	$238,501	.....
Canvas shoes with rubber soles	409,968	.....	2,203,700	.....
Boots and shoes.....	239,628	.....	734,501	.....
Clothing including waterproofed	2,068	.....	15,355	.....
Hose	24,743	.....	117,425	.....
Tires, casings.....	1,143,182	.....	8,111,992	.....
Inner tubes	190,984	.....	1,618,098	.....
Solid	24,504	.....	207,894	.....
Other rubber manufactures..	77,594	$7,334	333,206	$41,611
Totals	$2,164,931	$7,334	$13,580,672	$41,611
Totals, rubber exports..	$2,184,526	$7,334	$13,704,061	$41,611

Landings, Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During the Month of October, 1927.

	Landed for October	Delivered for October	Stocked October 31		
LONDON	Tons	Tons	1927 Tons	1926 Tons	1925 Tons
Plantation	8,374	7,036	69,390	41,962	4,948
Other grades	2	2	120	113	33
LIVERPOOL					
Plantation	†815	†1,069	†3,015	†1,468	†455
Total tons, London and Liverpool	9,191	8,107	72,525	43,543	5,436

† Official returns from the six recognized public warehouses.

PERILLO GUM

The Department of Commerce states that about 300,000 pounds of Panama perillo gum were shipped to the United States in 1927. Limited amounts of this gum with chicle is said to have a commercial success, as it is not as hard as balata, or as soft as pendare, the latter a gum from the northern countries of South America. Perillo is gathered in commercial quantities only in the forests of Panama and Colombia, the chief source being the north coast of Panama, between the Canal Zone and Bocas del Toro.

United Kingdom Rubber Statistics

IMPORTS

	October, 1927		Ten Months Ended October, 1927	
UNMANUFACTURED	Founds	Value	Pounds	Value
Crude Rubber From—				
Straits Settlements 10,904,200		£746,438	112,791,900	£8,739,778
Federated Malay States....	5,438,400	370,552	54,420,600	4,189,842
British India	707,600	48,094	10,686,800	841,251
Ceylon and Dependencies..	3,850,000	262,673	33,023,800	2,536,474
Other Dutch possessions in Indian Seas	3,127,600	216,225	23,297,800	1,796,872
Dutch East Indies (except other Duth possessions in Indian Seas)	2,304,100	157,710	26,270,200	2,056,294
Other countries in East Indies and Pacific not elsewhere specified	334,600	22,311	2,501,900	188,654
Brazil	708,700	40,546	8,837,400	551,336
Peru	.....	.....	30,800	1,879
South and Central America (except Brazil and Peru)	12,500	618	175,200	12,540
West Africa:				
French West Africa....	300	20	120,700	6,713
Gold Coast	67,200	4,277	517,600	35,431
Other parts of West Africa	289,000	18,637	1,556,600	111,759
East Africa, including Madagascar	166,100	11,504	1,338,300	99,863
Other countries	89,500	6,048	1,354,800	97,204
Totals 27,999,800		£1,905,653	276,924,400	£21,265,890
Waste and reclaimed rubber..	760,000	11,583	5,959,200	92,439
Gutta percha and balata.....	242,100	22,910	4,142,400	372,074
Rubber substitutes	2,600	53	97,700	4,004
Totals 29,004,500		£1,940,199	287,123,700	£21,734,407
MANUFACTURED				
*††Tires and tubes				
Pneumatic				
Outer covers	.....	£137,995	.....	£2,478,502
Inner tubes	.....	13,288	.....	304,446
Solid tires	.....	7,575	.....	150,524
Boots and shoes....*doz. pairs*	33,568	101,750	365,207	702,274
Other rubber manufactures...	.....	143,588	.....	1,414,362
Totals	.....	£404,196	.....	£5,050,108

EXPORTS

UNMANUFACTURED				
Waste and reclaimed rubber..	1,940,000	£21,072	22,558,900	£226,419
Rubber substitutes	54,800	1,356	547,000	12,847
Totals	1,994,800	£22,428	23,105,900	£239,266
MANUFACTURED				
*‡Tires and tubes				
Pneumatic				
Outer covers	.....	£186,982	.....	£2,408,233
Inner tubes	.....	33,151	.....	503,929
Solid tires	.....	23,453	.....	290,033
Boots and shoes....*doz. pairs*	22,417	39,480	210,129	333,196
Other rubber manufactures..	.....	243,530	.....	2,417,040
Totals	.....	£526,596	.....	£5,952,431

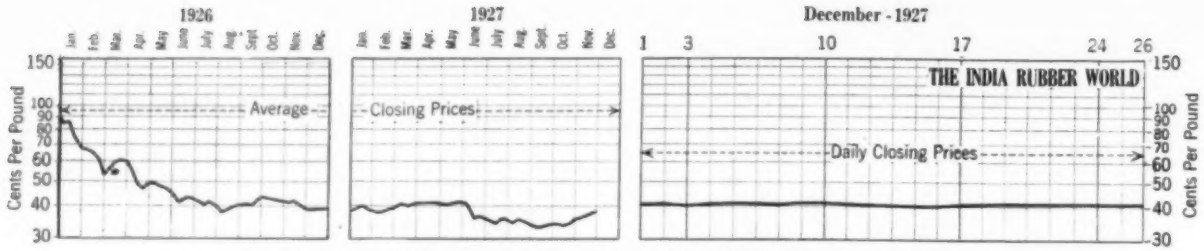
EXPORTS—COLONIAL AND FOREIGN

	October, 1927		Ten Months Ended October, 1927	
UNMANUFACTURED	Founds	Value	Pounds	Value
Crude Rubber To—				
Russia	1,231,200	£95,612	19,550,300	£1,789,201
Sweden, Norway and Denmark	294,700	26,296	2,035,100	185,493
Germany	4,029,900	302,366	26,538,000	2,113,376
Belgium	521,100	37,971	4,940,600	378,213
France	1,570,400	109,621	20,674,500	1,588,062
Spain	81,000	5,533	867,700	68,104
Italy	1,006,700	69,303	10,149,300	807,795
Other European countries..	259,900	24,783	2,671,600	248,774
United States	5,717,100	406,967	58,247,300	4,518,778
Canada	6,700	395	47,400	4,091
Other countries	91,100	6,610	715,300	63,822
Totals 14,809,800		£1,085,457	146,437,100	£11,765,709
Waste and reclaimed rubber..	4,100	109	265,000	7,497
Gutta percha and balata.....	29,400	2,842	505,600	48,387
Rubber substitutes	.....	.....	25,300	1,081
Totals 14,843,300		£1,088,408	147,233,000	£11,822,674
MANUFACTURED				
*‡Tires and tubes				
Pneumatic				
Outer covers	.....	£49,068	.....	£429,543
Inner tubes	.....	5,861	.....	60,021
Solid tires	.....	190	.....	9,690
Boots and shoes....*doz. pairs*	830	1,974	11,378	25,071
Other rubber manufactures..	.....	10,442	.....	90,742
Totals	.....	£67,535	.....	£615,067

*After April 12, 1927, tires and tubes imported or exported with complete vehicles or chassis, or fitted to wheels imported separately, are included under complete vehicles or parts.

†Motor cars, motorcycles, parts and accessories, liable to duty from Sept. 29, 1915, until Aug. 1, 1924, inclusive, and after July 1, 1925. Commercial vehicles, parts and accessories were exempt from duty until April 30, 1926, inclusive, and rubber tires and tubes until April 11, 1927, inclusive.

‡Tires and tubes included prior to April 12, 1927.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York Outside Market

THE December market showed a very steady price list from December 1 to 24. The average spot price for ribs during that period was 40½ cents a pound, low being 40 and high 41 cents. The 40 cent level was reached November 24 by a slow rise dating from November 1.

The week ended November 26 opened rather dull but showed increasing activity as the week advanced. Prices stiffened with higher eastern and London cables, this tendency being supported by active trading and speculation.

From Monday to Wednesday the advance was about 1½ cents a pound. Following the holiday on Thursday the price again rose a full cent due to sharp advances in London and Singapore. Probably factories that did not buy before the advance will pay higher for January to March positions, for rubber is strongly held and active market conditions are in prospect. On November 26, ribs were 41 cents, buyers; 41¼ cents, sellers.

The market of the week terminated December 3, was quieter than the preceding week. Prices eased off with profit taking and some short selling. Factories were closely watching the prices and when an easier tendency appeared they withdrew their bids. This caused dealers to refuse to buy c.i.f. offers unless at lower figures. Higher cables and some support served to harden the prices Thursday and caused a slight advance. There was little activity, however. The tendency to higher prices was apparent. On December 3, ribs were 40 cents, buyers; 40¼ cents, sellers.

The market of the week ended December 10 was rather quiet with prices fluctuating about one-half cent. The eastern markets were firm and higher than the New York market, causing caution on the part of buyers. Factory demand decreased, although some interest developed in January-March positions. On December 10, ribs were 40⅝ cents, buyers; 40½, sellers.

The week ended December 17 brought but little factory demand and only a few scattered sales of off grades. Factories were determined not to take on more rubber until after January 1. On December 17, ribs were 40 cents, buyers; 40¼ cents, sellers.

Conditions were quiet during the week ended December 24. Factory business was spotty and without much interest. The far eastern markets continued firm and higher than New York. Among the traders some are confident of higher prices and others, believe that a break may be looked for on account of the stocks on hand. On December 23, ribs were 40¾ cents, buyers; 41 cents, sellers.

Paras and balatas were very quiet with practically no trading in either grade.

Importations of all grades in November were 40,561 tons compared with 41,107 tons one year ago. Plantation arrivals for November were 38,301 tons compared with 39,219 tons one year ago. Total importations of plantation rubber for eleven months ended November 30, were 379,486 tons compared with 356,059 tons for the corresponding period of 1926. Total importations of all grades of rubber for the eleven months ended November 30 were 403,254 tons compared with 379,059 tons for the corresponding period of 1926.

RUBBER AFLOAT TO THE UNITED STATES

Week Ended	British Malaya	Ceylon	East Indies	London and Liverpool	Totals
December 3	6,348	847	1,641	943	9,779
December 10	5,014	709	2,890	635	9,248
December 17	5,395	565	1,801	1,789	9,550
December 24	5,483	1,030	1,487	1,229	9,229

The world production and consumption of crude rubber for 1928 is estimated as follows:

PRODUCTION

	Long Tons
*British Malaya	217,000
Ceylon	53,000
Dutch East Indies	230,000
Other Plantations	40,000
Brazil	25,000
Wild Rubber	12,000
	577,000
Deficit to be Met Out of World Stocks	49,000
	626,000

CONSUMPTION

	Long Tons
U. S. A.	400,000
United Kingdom	48,000
France	36,000
Germany	40,000
Italy	15,000
Canada	30,000
Japan	22,000
Rest of the world	35,000
	626,000

*Based on present restriction basis which can only be increased if prices advance materially.

New York Outside Market—Spot Closing Rubber Prices—Cents Per Pound

Plantations Sheet	November, 1927									December, 1927													
	21	22	23	*24	25	26	28	29	30	1	2	3	5	6	7	8	9	10	12	13	14	15	16	17
Ribbed smoked	38	38⅞	39⅜	....	40½	40⅞	41⅜	40⅞	40¼	40⅛	40¼	40	40¾	41	40¾	40⅜	40¾	40¾	40½	40¼	40⅛	40	40	40⅜
Crepe																								
First latex	38⅛	39	39⅜	....	40⅜	41⅛	41⅛	41⅛	40⅛	40¼	40⅜	40⅛	40⅞	41⅛	40⅞	40½	40⅞	40⅞	40¾	40½	40⅜	40	40⅛	40½
No. 2 blanket	35½	36½	37	....	38¼	38¼	39⅛	38⅞	38⅛	38	37¾	37⅝	38	38½	38½	38¼	38⅝	38⅝	38½	38¼	38	37⅞	37⅞	38⅛
No. 3 blanket	35⅛	36	36½	....	37⅜	38¼	38⅜	38¼	37⅜	37½	37⅜	37⅛	37¾	38⅛	38	37⅞	38⅛	38⅛	38	37¾	37½	37⅜	37½	37¾
No. 4 blanket	34½	35½	36	....	36⅞	37¾	38	37⅞	37⅜	37¼	37⅛	36⅞	37⅛	37⅝	37½	37¼	37⅝	37⅝	37½	37¼	37⅛	37	37	37
Thin clean brown	35¼	36	36½	....	37¾	38¼	38½	38¼	37¾	37½	37½	37¼	37⅝	38⅛	38⅛	37⅞	38⅛	38⅛	38	37¾	37½	37¼	37¼	37¾
Rolled Brown	31⅜	32½	33¼	....	34¼	35¼	35½	35¼	34¾	34¼	34¼	34⅛	34⅛	34⅞	34⅝	34¼	34½	34⅝	34½	34¼	34⅛	33¾	34	33⅞
Off latex	37⅝	38⅛	39	....	40⅛	40⅝	41	40½	39⅝	39¾	39⅝	39⅝	40⅛	40½	40⅜	40	40¼	40¼	40⅛	39⅞	39¾	39⅜	39⅝	39⅞

*Holiday.

London

The London rubber market during the last week of November and the first two of December was very active with a steadily rising tendency. The latter part of November there were signs of speculative activity in the market, the advance due in the main to steady buying by trade interests. There were large orders from the Continent, both Germany and France being steady buyers, while America also bought heavily. In the following week America continued to send orders though with the declining tendency buyers naturally reduced prices. A certain amount of profit taking went on and a rather easier market in the East has encouraged selling by dealers here.

A good demand from the Continent continued throughout the week, while the home trade also was in the market. Hamburg buyers sent steady orders for brown crepes and other off grades which were readily saleable. It is reported that Russia has bought pretty largely through Hamburg.

During the week ended December 10 the buying was partly American but large Continental orders were also placed. The inquiries from Germany were particularly good, while French buyers were steadily in the market.

The week closed December 17 was much quieter, buyers lowered their bids and sellers showed no eagerness to meet the lower level of prices.

The following comment by the *London Statist* is of interest:

"We think everyone realizes now that the raising of the restriction pivotal price to 1 shilling 9 pence was a serious error of judgment and in due course it will also be realized that drastic British restriction in face of continuous Dutch expansion is suicidal. A way out of the difficult situation has to be found. The price undoubtedly can be raised temporarily by tightening restriction and thereby further reducing British production, but the dominating requirement of the chief consuming industry being cheapness, a cheap article will be obtained by invention, scientific recovery or growth of production in unrestricted fields. We are afraid that British producers as a whole have not faced the facts."

The weekly record of London stocks was as follows: November 26, 67,318 tons; December 3, 65,869 tons; December 10, 66,011 tons; December 17, 64,761 tons; December 24, 63,397 tons.

Singapore

The Eastern markets in December fluctuated somewhat widely and at one time were fully one pence a pound above the London and New York markets. Quiet conditions subsequently prevailed there but the prices still remain high.

Plantation Rubber Exports from Malaya*

	January 1 to October 31, 1927		
	From Singapore Tons	From Penang Tons	From Malacca Tons
To United Kingdom	7,718.87	9,650.67	7,169.00
British Possessions	3,560.22	116.36	160.55
Continent of Europe	13,448.31	1,895.27	2,630.20
United States	131,059.21	23,596.23	9,433.27
Japan	10,728.64	2,029.00	2,091.70
Other Countries	81.35	.....	.....
Totals	166,596.60	37,287.53	21,484.52

* Excluding all foreign transhipment.

New York Outside Market—Spot Closing Rubber Prices—Cents, Per Pound

	December, 1927					
PLANTATIONS	19	20	21	22	23	*24
Sheet						
Ribbed smoked	40¾	40⅞	40⅞	41⅛	41⅛	..
Crepe						
First latex	40⅞	41	40⅞	41⅛	41⅛	..
No. 2 blanket	38¾	38¾	38½	38¾	38¾	..
No. 3 blanket	38½	38½	38	38¼	38¼	..
No. 4 blanket	37½	37¾	37¾	37⅞	37⅞	..
Thin clean brown	38	38¼	37¾	38⅜	38⅜	..
Rolled brown	34¼	34½	34¼	34½	34½	..
Off latex	40⅜	40½	40¼	40⅝	40¾	..

*Holiday.

New York Quotations

Following are the New York spot and future rubber quotations for one year ago, one month ago and December 27, the current date:

Plantation Hevea	December 27, 1926	November 26, 1927	December 27, 1927
Rubber latex (Hevea)...gal.	$1.50 @	$1.50 @	$1.50 @
CREPE			
First latex, spot	.39¼@.39¾	.40½@	.41 @
Dec.-Jan.	.39¼@	.40½@	.41 @
January-March	.39½@.40	.41¾@	.41⅞@
April-June	.40 @.40½	.42¼@	.42½@
Off latex, spot	.38½@.39	.40 @	.40½@
Amber No. 2, spot	.36½@.37	.38½@	.39 @
Dec.-Jan.	.36½@	.38½@	.39 @
January-March	.36½@.36¾	.39¼@	.39¼@
April-June	.36¾@.37	.40¼@	.40¼@
Amber No. 3, spot	.35½@.35¾	.38 @	.38¼@
Brown, thin, clean	.35¼@.35¾	.38 @	.38 @
Brown, specky	.34¾@.35¼	.37 @	.37 @
Brown, roll	.32 @.32½	.34½@	.34¾@
Sole crepe	†.57 @	@	@
Sheet			
Ribbed, smoked, spot	.39 @.39¼	.40½@	.40⅞@
Dec.-Jan.	.39¼@	.40½@	.40⅞@
January-March	.39½@.40	.41⅛@	.41⅜@
April-June	.40 @.40½	.42¼@	.42¼@
East Indian			
PONTIANAK			
Banjermassin	.12 @	.09½@.10	.09½@.10
Pressed block	.25 @	.15 @	.15 @
Sarawak	.12 @	.09½@	.10 @
South American			
PARAS			
Upriver, fine	.34 @.34½	.33 @	.33 @
Upriver, fine	@	@	*.42¼@
Upriver, medium	.30 @.30½	.30 @	.29 @
Upriver, coarse	.24½@.25	.26 @	.27½@
Upriver, coarse	@	@	*.38½@
Islands, fine	.28 @.28½	.29 @	.29 @
Islands, fine	@	@	*.41 @
Acre, Bolivian, fine	.34½@.35	.33¼@	.33½@
Acre, Bolivian, fine	@	@	*.43 @
Beni, Bolivian	.34½@.35	.34 @	.34½@
Madeira, fine	.34½@.35	.34 @	.33 @
Peruvian, fine	.33 @.33½	@	.32 @
Tapajos, fine	.31 @.31½	@	.31½@
CAUCHO			
Upper Caucho ball	.25 @.25½	.25 @	.27½@
Upper Caucho ball	@	@	*.38½@
Lower Caucho ball	.21 @.21½	.24½@	.26 @
Maniçobas			
Ceará negro heads	.30 @	†.26 @	.25 @
Ceará scrap	.16 @	†.16 @	.16 @
Manicoba, 30% guaranteed	.31 @	.30 @	.30 @
Mangabiera, thin sheet	.31 @	.32 @	.32 @
Centrals			
Central scrap	.23 @	.26 @	.27½@
Central wet sheet	.17 @	.20 @	.20 @
Corinto scrap	.23 @	.26 @	.27½@
Esmeralda sausage	.23 @	.26 @	.27½@
Guayule			
Duro, washed and dried	.31 @	.31 @	.32½@
Gutta Percha			
Gutta Siak	.30 @	.21 @.21½	.22 @
Gutta Soh	.38 @	.35 @	.35 @
Red Macassar	2.50 @3.00	3.00 @3.50	3.00 @
Balata			
Block, Ciudad Bolivar	.40 @.41	.47 @.48	.45 @
Colombia	.38 @	.39 @	.44 @.45
Manaos block	@	.48 @.49	.47 @
Panama	.38 @	†.39 @	.44 @
Surinam, sheet	.71 @	.57 @	.56 @
Amber	.78 @	.60 @	.60 @
Chicle			
Honduras	‡.56 @.60	‡.68 @	‡.68 @
Yucatan, fine	‡.56 @.60	‡.68 @	‡.68 @

* Washed and dried crepe. Shipment from Brazil.
† Nominal. ‡ Duty paid.

Low and High New York Spot Prices

PLANTATIONS.	December 1927*	December 1926	December 1925
First latex crepe	$0.39¼@$0.41¼	$0.36¾@$0.39¼	$0.89@$1.10
Smoked sheet, ribbed	.39¼@ .41	.36¾@ .39¼	.88@ 1.10
PARAS			
Upriver, fine	.30½@ .35	.31 @ .33	.79@ 1.04
Upriver, coarse	.24¼@ .27¾	.21 @ .23	.57@ .76½
Islands, fine	.....	.26 @ .29	.65@ .85

* Figured to December 24, 1927.

The Rubber Exchange of New York, Inc.

Transactions on the Rubber Exchange between November 28 and December 24, inclusive, amounted to 14,254 contracts or 35,635 tons, compared with 18,594 contracts or 46,485 tons in the period from October 24 to November 25. The spread between high and low prices was much less than occurred in the November market, ranging from ¼ cent to an extreme of 1¾ cent.

The week ended December 3 was one of the most active in the history of the Exchange and demonstrated its functioning in checking sudden price movements. On Monday a new high was recorded when the March position sold for 42.7 cents.

Cable reports of December 2 confirmed previous announcement that plantation assessments will be reduced about 15 per cent. This reduction is equivalent to about 50,000 tons of export rubber for 1928.

The market of the week closed December 17, showing declines of about one cent a pound below the close of the previous week. Business in actual rubber practically stood still during the week. While the factories showed little market interest it was thought that they were obtaining their supplies through the rubber pool at controlled prices. District bullish sentiment prevailed for the future months based on an expected increase in demand of tire manufacturers and gradual decrease of stocks and shipments.

The week terminated December 24 was very quiet with prices steady. Spot ribs being a full cent higher than last week's close. There was a fair interest on the part of factories for the nearer futures. The market closed December 23 for a three-day Christmas holiday.

The crude rubber outlook for 1928, as viewed by F. R. Henderson, president of the Rubber Exchange of New York, is as follows: "I look for a very broad development in the rubber industry during 1928. It undoubtedly will be a banner year in the automobile business, and our tire factories are well equipped for increased production. With wide fluctuations in rubber eliminated, the new year is one that offers great promise to the rubber industry the world over.

"The situation at the close of 1927 is about as follows: We have a world stock of approximately 250,000 tons. All countries will have consumed in 1927 about 610,000 tons. It requiries about two months to get rubber from its source to the point of consumption, so that the stock, in relation to requirements, is hardly above normal.

"Prices today return the producer a very fair margin of profit, and in turn enable the manufacturers to give the public rubber goods at attractive prices.

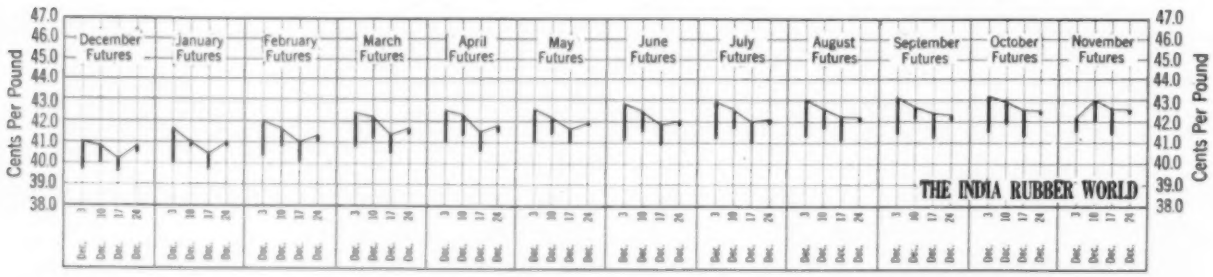
"We still have the British restriction law to contend with in any estimate as to the ensuing year, but there is no indication at present that they will again attempt to withhold supplies to the danger point. In 1925, when rubber prices soared to $1.20 from approximately the same level as today, a great part of the advance was due to panicky buying on the part of consumers, as well as speculators. This is all out of the question with an organized market. Price fluctuations on the Rubber Exchange are in tenths of a cent, and, while the turnover during 1927 was nearly 150,000 contracts of 2½ tons each, the movements in the market were confined within a range of less than ten cents per pound."

These views are virtually concurred in by Paul Elbogen & Co., Inc., as follows:

"Statistically, there has not been any change in the world position of rubber. However, the tightening of restrictions and particularly drastic measures now employed by the British Government with regard to smuggling, will have a very definite effect on the situation in the months to come.

"The year 1928 is expected to be a bumper year in the automobile business, not only in the United States but in other countries. Europe is gradually increasing its rubber consumption in proportion to its increase of automobiles."

New York Rubber Exchange—High and Low Monthly Futures—Cents Per Pound



The Rubber Exchange of New York, Inc.

DAILY MARKET FUTURES—RIBBED SMOKED SHEETS—CLOSING PRICES—CENTS PER POUND

1927	November 28	29	30	December 1	2	3	5	6	7	8	9	10	12	13	14	15	16	17	19	20	21	22	23	24*
December	41.0	40.3	39.8	39.8	39.9	39.7	40.4	40.8	40.5	40.0	40.0	40.5	40.2	39.8	39.8	39.6	39.8	40.1	40.5	40.7	40.6	40.8	40.8	....
1928																								
January	41.7	41.2	40.2	40.4	40.0	40.0	40.8	41.2	40.8	40.3	41.0	41.0	40.5	40.4	39.9	39.7	39.9	40.4	40.9	41.0	40.8	40.9	40.9	....
February ...	42.0	41.5	40.6	40.7	40.4	40.3	41.2	41.7	41.3	40.8	41.5	41.3	41.0	40.7	40.3	40.1	40.4	40.8	41.3	41.3	41.1	41.3	41.3	....
March	42.4	41.8	40.9	41.2	40.9	40.8	41.7	42.2	41.7	41.2	41.9	41.8	41.3	41.2	40.8	40.5	40.8	41.4	41.5	41.7	41.4	41.7	41.7	....
April	42.5	41.9	41.0	41.3	41.0	41.0	41.9	42.3	41.7	41.3	42.1	42.0	41.5	41.4	40.9	40.6	41.0	41.5	41.7	41.7	41.5	41.8	41.8	....
May	42.6	42.0	41.1	41.3	41.0	41.1	42.0	42.4	41.8	41.4	42.2	42.1	41.7	41.6	41.0	40.7	41.2	41.6	41.9	41.8	41.6	41.9	41.9	....
June	42.8	42.1	41.2	41.5	41.1	41.2	42.2	42.5	41.9	41.5	42.3	42.3	41.8	41.7	41.2	40.9	41.2	41.7	42.0	41.8	41.8	42.0	42.0	....
July	42.9	42.1	41.3	41.8	41.2	41.3	42.4	42.6	42.0	41.7	42.4	42.4	42.0	41.7	41.3	41.0	41.3	41.8	42.0	41.9	41.9	42.1	42.1	....
August	43.0	42.2	41.4	41.9	41.3	41.4	42.5	42.6	42.1	41.7	42.5	42.5	42.2	41.9	41.5	41.1	41.4	41.9	42.1	42.0	42.0	42.2	42.2	....
September ..	43.1	42.3	41.5	42.0	41.4	41.5	42.6	42.7	42.1	41.8	42.6	42.7	42.4	42.0	41.6	41.2	41.5	42.1	42.2	42.2	42.1	42.3	42.3	....
October	43.2	42.4	41.7	42.1	41.5	41.6	42.7	42.9	42.3	41.9	42.7	42.8	42.5	42.1	41.7	41.3	41.6	42.2	42.3	42.3	42.3	42.5	42.5	....
November ..	...	...	...	42.2	41.6	41.7	42.8	43.0	42.4	42.0	42.8	42.9	42.6	42.2	41.8	41.4	41.7	42.3	42.4	42.4	42.4	42.6	42.6	....

*Holiday.

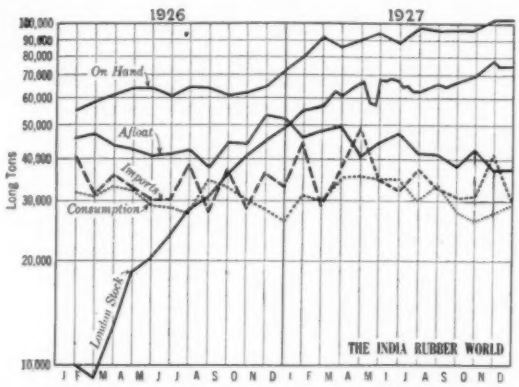
Aage Peter Bierrie, Bierrie & Co., Inc.; Robert B. McGaw, The Fisk Rubber Co., and Bancroft W. Henderson, Bancroft W. Henderson & Co., Inc., all of New York City, have been admitted to membership on the Rubber Exchange of New York.

Carroll V. Geran, a member of the New York Cotton Exchange, purchased, December 12, a seat on the Rubber Exchange for $5,500, from Francis H. Robinson, Jr. John L. Handy, J. L. Handy, Inc., purchased, December 22, for another, the membership of Charles J. Walter for $6,000.

Imports, Consumption and Stocks

The accompanying graph covers the crude rubber supply, consumption, and stocks for 1926 and 1927. Stocks on hand in the United States on November 30 rose to 101,000 tons as tire manufacturing schedules were seasonally reduced that month.

It was estimated that stocks would hold above 100,000 tons until December 31.



U. S. Imports, Consumption, Stocks, 1926-1927

Imports and consumption in December, 1927, are estimated each at 29,000 tons. London stocks between November 26 and December 17 declined about 2,500 tons to 64,761 tons on the latter date.

UNITED STATES CRUDE RUBBER IMPORTS, CONSUMPTION AND STOCKS

			Stocks			
1925	Imports Tons	Consumption Tons	On Hand† Tons	Afloat† Tons	London Tons	Singapore and Penang Tons†
Twelve months	384,837	389,136	51,000*	48,000*	.....	.....
1926						
Twelve months	411,900	358,415	72,510*	52,019*	.....	.....
1927						
January	45,736	31,500	76,171	45,218	54,786	26,443
February	29,446	29,000	76,000	48,000	56,962	26,766
March	39,500	36,100	91,086	49,597	63,167	27,844
April	48,700	35,900	92,800	39,000	67,034	24,543
May	36,569	34,590	94,600	44,200	56,668	25,133
June	33,194	33,800	89,250	47,233	64,486	21,898
July	38,667	29,219	98,469	40,587	63,626	18,674
August	33,068	33,460	96,148	40,937	64,842	21,764
September	32,798	27,214	97,829	37,966	68,519	25,178
October	31,310	26,791	97,452	42,804	69,660	25,790
November	40,984	26,792	101,034	37,076	28,369	.....
Dec. (est.)	29,000	29,000	101,000	37,000	.....	.....

* December 31, 1925 and 1926.
† The first of each month.

CHROME FINISHED MOLDS

Hard finished chromium plated molds are now available for vulcanizing rubber articles for many purposes. By an improved process the chromium is deposited on the molds with a very lustrous hard surface that eliminates the burning on of the sulphur or other materials from the rubber during cure. Such deposits are easily removable by mineral cleaners leaving the original bright surface after each operation. Chromium plated molds are highly desirable where lustrous finish is sought that will continue through long exposure, as for examples, in fountain syringes, water bottles, heels, etc.

Reclaimed Rubber Market

The demand for reclaim decreased to some extent during December, becoming routine due to the approach of inventory and seasonal reduction in many lines of rubber work. The outlook for reclaim in the new year is most encouraging. The technical value, particularly of tire and tube reclaims, continues to gain appreciation in the trade. Reclaimers have produced excellent qualities both in gray and red reclaims that are finding favor in molded inner tubes.

Quotations for the more popular grades of tire reclaim have advanced slightly. High tensile black and red are also higher, the latter moving up 2¼ cents a pound. No. 2 inner tube reclaim is ¾ of a cent above the November 26 quotation. All other reclaim grades are unchanged.

New York Quotations

December 27, 1927

	Specific Gravity	Price per Pound
Auto Tire		
Black	1.21	$0.08¼ @ $0.08¾
Black, washed	1.18	.10¾ @ .10¾
Black selected tires	1.20	.08¾ @ .09
Dark gray	1.35	.11½ @ .12
Light gray	1.38	.13 @ .13¼
White	1.40	.15 @ .15½
High Tensile		
Super-reclaim, No. 1 black	1.20	.17¾ @ .18¼
No. 2 black	1.20	.14 @ .14½
High tensile red	1.20	.16¼ @ .16½
Shoe		
Unwashed	1.60	.08 @ .08¼
Washed	1.50	.10¼ @ .10¾
Tube		
No. 1	1.00	.17 @ .17½
No. 2	1.18	.14¼ @ .14½
Miscellaneous		
Red	1.35	.14 @ .14½
Truck tire, heavy gravity	1.55	.07½ @ .07¾
Truck tire, light gravity	1.40	.08 @ .08¼
Mechanical blends	1.60	.07 @ .08

World Rubber Absorption—Net Imports

	Long Tons—1927			
	July	August	September	October
Australia	900	650	750	908
Belgium	436	604	552	465
Canada	2,104	2,013	1,850	1,790
Czechoslovakia	236	123	272	.....
Denmark	43	56	50	.....
Finland	43	38	123	132
France	2,384	2,795	1,956	4,302
Germany	2,899	3,119	2,891	4,202
Italy	1,007	1,274	684	.....
Japan	1,505	1,970	2,025	1,966
Netherlands	66	—63	—32	156
Norway	39	46	95	.....
Russia	415	386	518	1,075
Spain	177	138	155	.....
Sweden	102	172	183	190
United Kingdom	1,116	3,463	7,800	5,888
United States	35,720	31,001	28,704	27,671
United States (Guayule)	399	348	463	455
Totals	49,591	48,259	49,103	.....

— Minus quantity; excess of reexports over imports.
Compiled by Rubber Division, Department of Commerce, Washington, D. C.

World Rubber Production—Net Exports

	Long Tons—1927				
	July	August	September	October	November
British Malaya	11,250	13,266	17,740	14,045	8,417
Ceylon	4,018	5,357	4,911	5,245	.....
Indian and Burma	827	688	479	.....	.....
Sarawak	859	1,133	645	721	1,241
British Borneo	*500	*500	*500	*500	*500
Siam	333	546	498	452	600
Java and Madura	4,771	4,355	3,635	3,810	.....
Sumatra East Coast	6,140	6,683	6,052	7,755	.....
Other N. E. Indies	11,663	12,054	10,059	13,633	.....
French Indo-China	519	216	497	775	683
Amazon Valley	1,713	2,004	2,474	2,704	2,547
Other America	95	102	.....	.....	.....
Mexican Guayule	399	348	463	455	.....
Africa	621	519	.....	.....	.....
Totals	43,708	48,271	.....	.....	.....

* Estimate.
Compiled by Rubber Division, Department of Commerce, Washington, D. C.

The Market for Rubber Scrap

The rubber scrap business was very active in December. The demand for tires and inner tubes was large in volume and rivaled that of November. Collections of scrap were somewhat affected by winter weather conditions but totaled a fair tonnage.

AIR BRAKE HOSE. Air brake hose was active. Prices are $1 to $2 per ton lower than one month ago.

BOOTS AND SHOES. The demand continues to improve. Prices on all grades are unchanged from those of December 1.

INNER TUBES. Scrap inner tubes of all grades have advanced. No. 1 floating moved up ½ cent and mixed tubes only ⅛ cent. The demand for the general line is excellent, supported by extended use of inner tube reclaim.

MECHANICAL GOODS. The demand is of fair proportions. The quotations are mostly unchanged. Mixed black, air brake and regular soft hose, however, are slightly lower.

TIRES. There is a good reclaiming demand for tires at prices slightly lower than a month ago. The exceptions are white auto, and white beadless tires which remain unchanged.

Quotations for Carload Lots

December 27, 1927

Boots and Shoes			
Boots and shoes, black	lb.	$0.01⅞ @	$0.02
Red and white	lb.	.01 @	.0115
Trimmed arctics, black	lb.	.00¾ @	.01
Untrimmed arctics	lb.	.00¾ @	.01
Tennis shoes and soles	lb.	.01 @	
Hard Rubber			
No. 1 hard rubber	lb.	.09½ @	.10
Battery jars, black compound	lb.	.01 @	.01½
Inner Tubes			
No. 1, floating	lb.	.08 @	.08¼
No. 2, compounded	lb.	.05¾ @	.05¾
Red	lb.	.07 @	.07¼
Mixed tubes	lb.	.05¾ @	.06
Mechanicals			
Mixed black scrap	lb.	.00½ @	.00¾
Heels	lb.	.00½ @	.00⅝
Hose, air brake	ton	35.00 @	38.00
regular soft	ton	15.00 @	17.00
No. 1 red	lb.	.01¾ @	.01⅞
No. 2 red	lb.	.01 @	
White, druggists' sundries	lb.	.02½ @	.03
Mechanical	lb.	.01½ @	.01⅝
Tires			
Pneumatic Standard—			
Mixed auto tires with beads	ton	25.50 @	27.00
Beadless	ton	36.00 @	38.00
White auto tires with beads	ton	40.00 @	42.00
Beadless	ton	50.00 @	52.00
Mixed auto peelings	ton	36.00 @	38.00
Solid—			
Mixed motor truck, clean	ton	26.00 @	28.00

Ceylon Rubber Exports

January 1 to September 30, 1927

	Tons
To United Kingdom	11,637.52
Continent	2,425.16
Australia	1,177.27
America	26,129.84
Egypt	8.00
Africa	75.07
India	17.80
Japan	140.01
Total	41,610.67
For the same period last year	41,817.94

ANNUAL EXPORTS 1921-1926

	Tons
For the year 1926	58,799.56
1925	45,697.19
1924	37,351.13
1923	37,111.88
1922	47,367.14
1921	40,210.31

N. T. D. A. CONVENTION

The next convention of the National Tire Dealers' Association will be held at Boston, Massachusetts, in 1928, and will probably take place in November.

United States Rubber Statistics

IMPORTS OF CRUDE AND MANUFACTURED RUBBER

	September, 1927		Nine Months Ended September, 1927	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber	74,595,247	$25,314,412	731,910,518	$268,102,490
Balata	54,443	16,960	758,982	272,075
Jelutong or Fontianak	1,984,565	270,069	13,794,667	2,035,651
Gutta percha	279,507	67,072	2,631,395	551,839
Guayule	1,037,500	242,545	8,278,236	1,981,872
Rubber scrap	1,612,360	43,446	15,557,447	665,963
Totals	79,563,622	$25,954,504	772,931,245	$273,609,890
Chicle *dutiable*	474,655	$252,897	8,424,191	$4,259,001
MANUFACTURED—*Dutiable*				
Rubber belting	100,023	$53,480	508,934	$310,977
Rubber tires	564	3,560	3,513	50,089
Other manufactures of rubber	.....	136,588	.....	1,022,474
Totals	100,587	$193,628	512,447	$1,383,540

EXPORTS OF FOREIGN MERCHANDISE

RUBBER MANUFACTURES				
Crude rubber	7,840,215	$3,036,929	45,111,924	$18,432,825
Balata	15,495	5,390	82,658	31,638
Gutta percha and rubber substitutes and scrap	25	20	99,565	14,638
Rubber manufactures	.....	976	.....	215,608
Totals	7,855,735	$3,043,315	45,294,147	$18,694,709

EXPORTS OF DOMESTIC MERCHANDISE

MANUFACTURED				
India Rubber				
Reclaimed	1,206,536	$97,760	14,646,349	$1,404,224
Scrap and old	2,202,637	133,292	21,201,122	1,285,992
Footwear				
Boots *pairs*	121,735	285,467	553,146	1,381,578
Shoes *pairs*	293,947	291,313	1,265,815	1,122,807
Canvas shoes with rubber soles *pairs*	308,860	215,773	3,725,270	2,528,607
Rubber water bottles and fountain syringes *number*	33,808	20,013	244,044	161,182
Rubber gloves *doz. pairs*	7,154	23,218	56,327	181,586
Other druggists' rubber sundries	.....	28,794	.....	329,620
Bathing caps *doz.*	5,644	15,510	146,951	311,479
Hard rubber goods				
Electrical hard rubber goods	110,950	22,114	882,526	209,410
Other hard rubber goods	.....	23,703	.....	288,995
Tires				
Casings, automobile *number*	174,461	2,352,116	2,080,212	26,730,694
Tubes, automobile *number*	118,628	270,503	1,248,827	2,656,636
Other casings and tubes, *number*	6,537	14,997	45,791	135,741
Solid tires for automobiles and motor trucks *number*	6,804	198,542	78,001	2,333,661
Others	173,598	38,340	1,241,859	312,146
Tire accessories	.....	159,854	.....	1,394,251
Rubber and friction tape	99,763	27,249	1,146,457	332,154
Belting	385,245	220,216	3,593,327	1,918,136
Hose	531,720	188,688	5,478,220	2,066,263
Packing	173,481	88,094	1,820,756	828,262
Soles and heels	434,106	139,807	3,474,129	1,099,848
Thread	112,091	143,252	1,091,032	1,393,191
Rubber bands and erasers	67,366	50,229	658,407	480,804
Other rubber manufactures	.....	184,396	.....	1,795,592
Totals	.....	$5,233,240	.....	$52,682,859
Rubber toys and balls	.....	$14,925	.....	$133,461
Rubber balloons *gross*	50,313	$61,818	400,077	$519,619

Imports of Crude Rubber Into the United States by Customs Districts

	*October, 1927		Ten Months Ended *October, 1927	
	Pounds	Value	Pounds	Value
Massachusetts	2,229,160	$723,129	38,482,084	$14,044,906
St. Lawrence	.....	.....	6,864	2,265
Buffalo	.....	.....	25,765	9,716
New York	62,973,188	20,639,346	705,395,429	255,834,679
Philadelphia	287,500	94,817	7,699,306	2,993,763
Maryland	1,840,111	608,733	21,848,254	7,803,574
New Orleans	.....	.....	2,057	227
Los Angeles	110,158	37,486	16,386,760	5,992,417
San Francisco	81,679	28,058	3,611,070	1,379,089
Oregon	55,925	19,576	760,784	293,081
Washington	.....	.....	112,000	44,240
Dakota	.....	.....	28	10
Michigan	.....	.....	910	325
Chicago	.....	.....	500	128
Ohio	35,404	12,137	4,217,432	1,508,791
Colorado	.....	.....	974,400	358,561
Totals	67,613,125	$22,163,282	799,523,643	$290,265,772

* Including latex, dry rubber content.

Compounding Ingredients Market

IN the year just completed the demand by the rubber industry for compounding ingredients reached record proportions in the major items. The usual seasonal buying featured the past month and the outlook for 1928 business bids fair for continuance of demand for supplies in full volume.

ACCELERATORS. The various ultra accelerators are gaining in popularity because of the low temperature curing they make possible. Along this line developments to suppress the tendency of scorching on the part of the more intensely active accelerators, would be welcome.

ANTI-OXIDANTS. The demand for anti-oxidants is gaining in volume and is now being met by several very effective materials from various chemical manufacturers.

BENZOL. Prices are steady with the consuming demand limited to hand-to-mouth needs.

CARBON BLACK. Active seeking for contracts is noted on the part of consumers. Contracts for 1928 are reported being booked at 6½ cents. Spot demand is routine and seasonal.

CLAY. Huber's Aerfloted suprex clay from the Langford district of South Carolina is being offered to the trade.

COLORS. Among the new organic colors recently introduced for rubber work are Huber's blue, brown, green, orange, red and yellow.

DEGRAS. This softener is somewhat new to the rubber industry. Its special value is gaining rapidly in appreciation by compounders and reclaimers.

LITHARGE. Early in the month this material was advanced 25 cents per 100 pounds. Buyers are protected to June 30, 1928. There has been increased buying of hand-to-mouth character.

LITHOPONE. Consumers are showing increase of interest. Contract price on lithopone for the first six months of 1928 ranges from 5¼ to 6 cents, according to tonnage.

MINERAL RUBBER. The tonnage of M. R. consumed by the rubber industry increased greatly in 1927 over previous years. It bids fair to hold its position as a favorite and cheap and widely available adjunct to rubber.

SOLVENT NAPHTHA. Production is not greatly over 50 to 60 per cent of capacity. Prices hold steady and the outlook for 1928 is good.

STEARIC ACID. Stearic acid is fast becoming recognized as essential for standardizing curing conditions as regards the crude rubber content. Prices hold steady.

ZINC OXIDE. The demand of this standard and indispensable rubber compounding ingredient is steadily maintained, with the price firm.

New York Quotations

December 27, 1927

Accelerators, Inorganic			
Lead, carbonate	lb.	$0.08½	@
Lead, red	lb.	.10	@
sublimed white	lb.	.07¾	@
sublimed blue	lb.	.07¾	@
super-sublimed white lead	lb.	.08¼	@
Lime, R. M. hydrated	ton	12.50	@
Litharge	lb.	.09	@
Magnesia cal., light	lb.	.05	@
calcined, extra light	lb.	.30	@
calcined, heavy	ton	75.00	@
magnesium, carb., light	lb.	.06	@ .07
Orange mineral A.A.A.	lb.	.12	@
Accelerators, Organic			
A-7	lb.	.65	@ .85
A-11	lb.	.70	@ .90
A-16	lb.	.65	@ .85
A-19	lb.	.70	@ .90
A-20	lb.	.64	@ .70
Aldehyde ammonia	lb.	.65	@ .70
B. B.	lb.		@
Captax	lb.		@
Crylene, hard form	lb.	.70	@
Paste	lb.	.50	@
Di-ortho-tolylguanidine	lb.	.85	@ .90
Diphenyl guanidine	lb.	.68	@ .72
Ethylidine aniline	lb.	.60	@ .65
Formaldehyde aniline	lb.	.38	@ .42
P. A. C.	lb.	.08½	@ .09
Grasselerator 102	lb.	.62½	@ .67½
552	lb.	4.45	@
808	lb.	1.05	@ 1.35
833	lb.	1.55	@ 1.75
Heptene	lb.		@
Hexamethylene tetramine	lb.	.62½	@ .67½
Lithex	lb.	.18	@ .20
Methylene dianiline	lb.	.37	@
Monex	lb.	3.25	@
No. 999 lead oleate	lb.	.14	@ .16
Phenyl orthotolyl guanidine	lb.	.76½	@ .81
Piperidine pentamethylene dithio carbamate	lb.	4.45	@ 4.60
R. & H. 40	lb.	.50	@ .55
50	lb.	.50	@ .55
Safex	lb.	1.20	@ 1.25
Super-sulphur, No. 1	lb.		@
No. 2	lb.		@
Tensilac No. 39	lb.	.55	@ .60
No. 41	lb.	.65	@ .70
Thermlo F	lb.	.50	@ .55
Thionex	lb.		@
Thiocarbanilid	lb.	.26	@ .28½
Trimene	lb.		@
base	lb.		@
Triphenylguanidine	lb.	.65	@ .70
Tuads	lb.		@
Vulcanex	lb.		@
Vulcanol	lb.		@
Vulcone	lb.	.70	@
Z-88	lb.	.75	@ 1.00
Zimate	lb.		@
Acids			
Acetic 28% (bbls.)	100 lbs.	3.37½	@ 3.62½
glacial (carboys)	100 lbs.	12.41	@ 12.66
Sulphuric, 66°	100 lbs	1.75	@

Alkalies			
Caustic soda, solid	lb.	$0.02¼	@
Anti-Oxidants			
Age-Rite, powder	lb.		@
resin	lb.		@
Antox	lb.	.77	@
Neozone	lb.	.74	@
V. G. B.	lb.		@
Colors			
BLACK			
Bone	lb.	.07	@ .21
Carbon (see Comp. Ing.)			
A. & W. nonfli No. 1	lb.	.40	@
Drop	lb.	.06	@ .10
Lampblack (commercial)	lb.	.09	@
BLUE			
A. & W. blue	lb.	1.25	@ 5.00
Du Pont, N.	100 lbs.	1.35	@
Marine, A. C.	100 lbs.	1.30	@
5 R.	100 lbs.	1.00	@
2 G.	100 lbs.	.90	@
Huber Brilliant	lb.	4.20	@
Prussian	lb.	.31	@ .35
Ultramarine	lb.	.06	@ .30
BROWN			
Huber Mocha	lb.	1.60	@
Sienna, Italian, raw	lb.	.05	@ .12½
GREEN			
A. & W. green	lb.	1.25	@ 3.00
Chrome, light	lb.	.27	@ .31
medium	lb.	.28	@ .31
dark	lb.	.30	@ .33
Du Pont, A. C.	100 lbs.	3.00	@
4 G.	100 lbs.	.60	@
G. L.	100 lbs.	.30	@
Y. L.	100 lbs.	.75	@
Huber Brilliant	lb.	3.85	@
Oxide of chromium	lb.	.38	@
ORANGE			
Du Pont, 2 R.	100 lbs.	1.40	@
R. X.	100 lbs.	1.30	@
Y. O.	100 lbs.	1.60	@
Huber Persian	lb.	.50	@
RED			
A. & W. red	lb.	.75	@ 3.50
purple	lb.	2.00	@ 4.00
Antimony, golden, No. 40	lb.		@
No. 60	lb.		@
golden 15/17%	lb	.16	@ .20
Huber Brilliant	lb.	1.35	@

Colors—(Continued)			
T. K. "Special"	lb.		@
Pentasulphide 15/17%	lb.		@
Antimony			
Crimson, R.M.P. No. 3	lb.	$0.50	@
Sulphur free	lb.	.55	@
T. K. 15/17%	lb.		@
7-A.	lb.	.35	@
Z-2	lb.	.22	@
Vermilion, No. 5	lb.		@
No. 15	lb.		@
Du Pont, R. I.	100 lbs.	2.00	@
6 B.	100 lbs.	1.10	@
Brilliant A. C.	100 lbs.	1.05	@
Iron Oxides			
bright pure domestic	lb.	.12	@
bright pure English	lb.	.14	@
bright reduced English	lb.	.10½	@ .11
bright reduced domestic	lb.	.10	@
Indian (maroon), pure domestic	lb.	.11	@
Indian (maroon), pure English	lb.	.10½	@ .11
Indian (maroon), reduced English	lb.	.09	@ .10
Indian (maroon), reduced domestic	lb.	.08	@
Oximony	lb.		@
Spanish red oxide	lb.	.04	@
Venetian reds	lb.	.02	@ .06
Vermilion, Eng. quicksilver	lb.	1.85	@ 1.90
WHITE			
Lithopone	lb.	.05½	@ .05⅞
Azolith	lb.	.05¼	@ .05¾
Grasselli	lb.		@
Sterling	lb.		@
Zinc Oxide			
AAA (lead free)	lb.	.06½	@
Azo (factory):			
ZZZ (lead free)	lb.	.06½	@ .07
ZZ (leaded)	lb.	.06½	@ .07⅛
Z (8% leaded)	lb.	.06½	@ .07⅛
French Process			
Green seal	lb.	.10⅞	@
Red seal	lb.	.09⅞	@
White seal	lb.	.11⅞	@
YELLOW			
A. & W. yellow	lb.	2.00	@ 4.00
T. K. sulphide	lb.	.65	@
Cadmium sulphide	lb.	1.35	@ 2.00
Chrome	lb.	.16	@ .17
Du Pont N.	100 lbs.	4.00	@
R. R.	100 lbs.	1.55	@
Grasselli cadmium	lb.	1.50	@
Huber Canary	lb.	3.30	@
Ochre, domestic	lb.	.01½	@ .02½
Oxide, pure	lb.	.10½	@
Zinc imported	lb.	.23	@

New York Quotations

December 27, 1927

Compounding Ingredients

Aluminum flake (sacks c.l.)	ton	$21.85	@$24.50
(sacks l.c.l.)	ton	24.50	@
Ammonium carbonate powd.	lb.	.10½	@
lump	lb.	.11	@
Asbestine	ton	13.40	@14.50
Barium, carbonate	ton	49.00	@50.00
Barytes, imported	ton	27.00	@34.00
dry ground, white	ton	16.00	@
dry ground, off color	ton	12.00	@
No. 1 Missouri, water ground and floated, St. Louis	ton	21.60	@23.00
Basofor	lb.	.04½	@
Blanc fixe, dry	lb.	.04¾	@
pulp	ton	60.00	@
Carbon Black			
Aerfloted arrow	lb.	.08	@ .12
Compressed	lb.	.07½	@ .11½
Uncompressed	lb.	.07	@ .11
Micronex	lb.	.08	@ .12
Carrara filler	lb.	.01½	@
Chalk, precipitated	lb.	.04¼	@ .04¾
Clay, Blue Ridge, dark	ton		@
Blue Ridge, light	ton		@
China	lb.	.01½	@
Dixie	ton		@
Langford	ton		@
Mineral flour (Florida)	ton	20.00	@23.00
Perfection	ton	14.00	@
Suprex	ton	8.00	@20.00
Cotton flock, black	lb.	.10	@ .12
light-colored	lb.	.11	@ .12
white	lb.	.10	@ .26
Fossil flour	lb.	.02½	@
Glue, high grade	lb.	.23	@ .27
low grade	lb.	.19	@ .23
Infusorial earth	lb.	.02½	@
Mica, amber (fact'y)	ton	80.00	@
Pumice stone, powd.	lb.	.02½	@ .04
Rotten stone (bbls.)	lb.	.02½	@ .04½
Soap bark	lb.	.16	@ .17
Soapstone	ton	15.00	@22.00
Talc, domestic	ton	15.00	@25.00
French	ton	18.00	@22.00
Pyrax A	ton		@
B	ton		@
Thermatomic carbon	lb.		@
Titanox	lb	.10	@ .10½
Velvetex	lb.	.04	@ .07

Compounding Ingredients—*(Continued)*

Whiting:			
Commercial	100 lbs.	$0.85	@$1.00
English, cliffstone	100 lbs.	1.50	@
Quaker	ton		@
Snow white	ton		@
Sussex	ton		@
Westminster Brand	100 lbs.		@
Witco (c.l.) (fact'y)	ton	12.00	@
Whiting, imp. chalk	100 lbs.	1.00	@ 1.20
Paris White, Eng. Cliff.	100 lbs.	1.50	@ 3.50

Factice—See Rubber Substitutes

Mineral Rubber

Fluxrite (solid)	lb.	.05½	@ .06
Genasco (fact'y)	ton	50.00	@52.00
Gilsonite (fact'y)	ton	37.14	@39.65
Granulated M. R.	ton		@
Hydrocarbon, hard	ton		@
Hydrocarbon, soft	ton	28.00	@34.00
Ohmlac Kapak, M. R.	ton	40.00	@90.00
M-4	ton	175.00	@
Paradura (fact'y)	ton	62.50	@65.00
Pioneer, M. R., solid (fac.)	ton	27.00	@35.00
M. R. granulated	ton	32.00	@40.00
Robertson, M. R., solid (fact'y)	ton	34.00	@38.00
M. R. gran. (fact'y)	ton	34.00	@80.00

Oils

Mineral	gal.	.15	@
Spindle	gal.	.24	@
Kerosene	gal.	.17	@
Rapeseed	gal.	.83	@
Red oil, distilled	lb.	.09¾	@ .10¼
Rubber process	gal.	.16	@

Rubber Substitutes or Factice

Black	lb.	.08	@ .14
Brown	lb.	.08	@ .15
White	lb.	.09	@ .165

Softeners

Burgundy pitch	lb.	.04½	@
Corn oil	lb.	.11½	@
Cotton oil	lb.	.11½	@
Cycline oil	gal.	.27	@ .36
Degras	lb.	.04	@ .04½
Fluxrite (fluid)	lb.	.05½	@ .06
Palm oil (Lagos)	lb.	.09½	@
Palm oil (Niver)	lb.	.08½	@
Palm oil (Witco)	lb.	.08½	@

Softeners—*(Continued)*

Petrolatum, snow white	lb.	$0.09¼	@$0.09½
Pigmentar	gal.	.33	@ .39
Pine oil, steam distilled	gal.	.67	@ .69
Pine tar (retort)	bbl.	21.50	@13.00
Plastone	lb.	.36	@
Rosin K	bbl.	8.80	@
Rosin oil	gal.	.36	@
Rubtack	lb.	.08½	@
Shellac, orange	lb.	.70	@
Stearex	lb.	.11	@ .16
Stearic acid, double press'd.	lb.	.11¼	@ .12¾
Tackol	lb.	.09	@ .15

Solvents

Benzol (90%, 7.21 lbs. gal.)	gal.	.26	@ .28
Carbon bisulphide (99.9%, 10.81 lbs. gal.) (drums)	lb.	.05	@ .06
tetrachloride (99.7%, 13.28 lbs. gal.) (drums)	lb.	.07½	@ .08
Gasoline			
No. 303			
Tankcars	gal.	.14	@
Drums, c. l.	gal.	.25	@
Drums, l. c. l.	gal.	.27	@
Solvent naphtha	gal.	.40	@
Turpentine, spirits	gal.	.56½	@ .57
steam distilled	gal	.51	@ .53

Vulcanizing Ingredients

Sulphur			
Velvet flour (240 lb. bbls.)	100 lbs.	2.95	@ 3.50
(150 lb. bags)	100 lbs.	2.60	@ 3.15
Soft rubber (c.l.)	100 lbs.		@
(l.c.l.)	100 lbs.		@
Superfine commercial flour (210 lb. bbls.)	100 lbs.	2.55	@ 3.10
(100 lb. bags)	100 lbs.	2.20	@ 2.80
Tire brand, superfine	100 lbs.		@
Tube brand, velvet	100 lbs.		@
Vandex	lb.		@
(See also Colors—Antimony)			

Waxes

Beeswax, white, com.	lb.	.55	@
carnauba	lb.	.33	@ .60
ceresine, white	lb.	.12	@
montan	lb.	.07	@ .07½
ozokerite, black	lb.	.27	@
green	lb.	.28	@
Paraffin			
122/124 white crude scale.	lb.	.03	@
124/126 white crude scale.	lb.	.03½	@
120/122 fully refined	lb.	.05¾	@
125/127 fully refined	lb.	.06	@

ANTI-OXIDANT RUBBERWARE COATING

A formula for a wash solution said to be effective in filling fissures and in retarding sulphur oxidation in rubber goods is stated to comprise 1,300 grs. of talcum, 172 of glycerine, 34 of benzaldehyde put into a solution of 60 gr. of raw rubber in 600 gr. of paraffin oil at 140 degrees C., the temperature being raised to 180 degrees for two hours. For some uses 28 gr. of phenylhydrazine or 20 of glucose may be added.

LATEX IN LINOLEUM SUBSTITUTE

Latex may be used in making a linoleum or leather substitute, or for molded goods or electric insulating material, it is stated, by steeping in such fluid loose fleece or cellulose web, such as mercerized cotton, until the rubber is well deposited in the fiber, after which the water is expressed and the mass dried. The latex may be concentrated and have colloidal sulphur, with cement, gypsum, etc., as fillers, and may be molded and vulcanized.

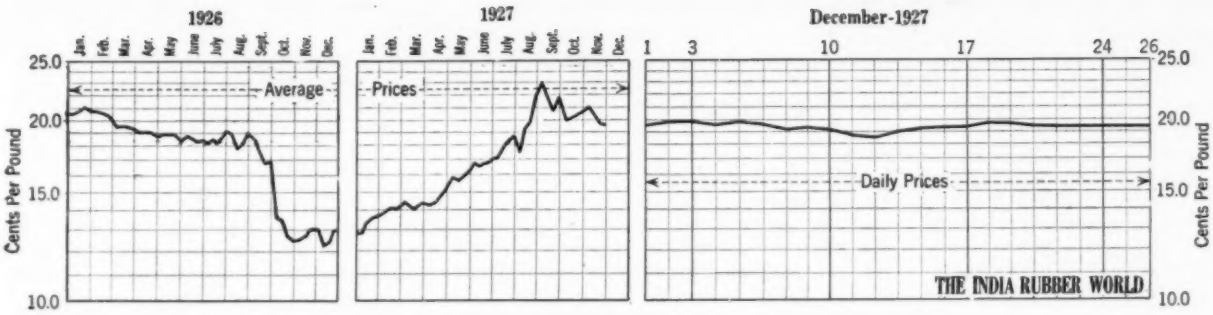
SALVAGE DIVISION FOR N. A. W. D.

A conference was held at the headquarters of the National Association of Waste Dealers to consider the advisability of forming an active salvage division. The heads of the salvage departments of about twenty-five large industrial concerns were represented at the meeting. The Board of Directors has authorized the formation of the division and additional details can be received by those interested by addressing the association's secretary, Charles M. Haskins, Times Building, New York, N. Y.

JUDGING LATEX PROSPECTS IN NURSERY

In an exhaustive study of Hevea bark anatomy made on 500 trees, by Herbert Ashplant, A. R. C. S., for the United Planters' Association of Southern India, it was found that "by no external signs is it possible to tell the yield-class of any Hevea tree, and while one internal character—the number of latex rings—has been found, in the case of adult trees, to be occasionally helpful in diagnosing yield value, this character is not sufficiently developed in the early life of the tree to permit of its utilization in forecasting ultimate yield capacity." He discovered that the diameter of the average cortical cell (from which latex tubes develop by the fusion of their end walls) varies in different trees, the diameter being, as a general rule, large in high-yielding trees and small in poor yielders." Variations in the size of the latex tube bore could explain why some trees with only a moderate number of latex rings can yield as much or more than those with double the number of rings. Inasmuch as cytologists regard cell size as a constant factor throughout plant life, it is possible through this method to determine a tree's future yield-capacity while it is yet in the nursery and thus save much time in the field.

It was noted, too, that tapping to identical depths will open up a greater proportion of the total rings at ground level than at three feet. As indicating the situation of the laticiferous ducts, a case is cited where a tree cut at 3 feet had 17 latex rings, of which 10 were tappable; at 1½ feet 22 vs. 14, and at ground 36 vs. 28 rings. Tapping to within 1½ millimeters of the cambium, which is commonly looked upon as deep tapping, misses about 30 per cent of the rings. An inefficient tapper frequently fails to reach more than 30 per cent of the total. It is hoped that these revelations will not stimulate depth soundings by planters beyond the stated limit.



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

Market for Cotton and Fabrics

AMERICAN COTTON. The price for middling spot cotton on December 1 was 19.65 cents as compared with 20.75 cents on November 1. The advance in prices did not materialize in December to the extent expected. Early in the month trading was comparatively quiet. The government issued its final crop estimate December 8, the figures being 12,789,000 bales. This amount was about what the trade expected. Following the report, prices experienced a sharp decline. Spot middlings dropped to 18.60 cents on December 13 but reacted the following day to 19.00 cents and advancing to 19.75 cents on December 19. During the remainder of the same week the price receded to 19.50 cents at which level the market closed for the Christmas holidays.

The general practice of hand-to-mouth buying is seriously hampering the economical operation of cotton mills apart from those making tire fabrics owned and operated by the large tire companies. These companies, of course, consume their own goods and therefore have a steady outlet and consequently can coordinate their manufacture and purchase of cotton. The majority of mills, however, are fortunate if they can place an order for cotton that will keep them running for two or three months.

EGYPTIAN COTTON. Staple cottons are affected by the general dullness in the goods market which has caused the general decline in prices of all cottons. They will not move from their present levels until the fine goods and tire fabric mills begin to receive orders in volume. Egyptian Uppers are not far out of line with American staples. Egyptian Sakels are high. The Soudan Sakel crop will not begin to move until March. It is an irrigated crop and the prospective yield is approximately 125,000 bales. Higher prices are probable within the next few months.

ARIZONA PIMA. Arizona pimas are considered much better value than Egyptian Sakels or Soudan Sakels because of the supply and probable demand for the first six months of 1928.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. Notwithstanding approaching holidays the duck market in December was active and followed a stronger cotton market. This is the first time such condition has prevailed during the past six months. Heretofore advancing cotton markets caused fabrics to advance in pursuit of the staple. The demand for cloths is good and prices firmer. The exception is drills which were quiet and no advances materialized. The short cotton crop this year is liable to be felt more and more as the season advances.

New York Quotations

December 27, 1927

Drills

38-inch 2.00-yard	*yard*	$0.17¼ @
40-inch 3.47-yard		.10½ @
50-inch 1.52-yard		.23½ @
52-inch 1.90-yard		.17⅞ @
52-inch 2.20-yard		.15½ @
59-inch 1.85-yard		.18⅞ @

Ducks

38-inch 2.00-yard S. F.	*yard*	.17½ @
40-inch 1.45-yard S. F.		.23¾ @
72-inch 1.05-yard D. F.		.36½ @
72-inch 16.66-ounce		.39½ @
72-inch 17.21-ounce		.40⅞ @
MECHANICAL		
Hose and belting	*pound*	.35 @
Specials		.39 @
TENNIS		
52-inch 1.35-yard	*yard*	.26½ @

Hollands

RUBBER TRADE SPECIAL		
R. T. 3 A.		
31-inch	*yard*	.20 @
40-inch		.25 @
50-inch		.45 @
RED SEAL		
36-inch		.15 @
40-inch		.15½ @
50-inch		.24 @
GOLD SEAL		
40-inch, No. 72		.20 @
40-inch, No. 90		.21 @

Osnaburgs

40-inch 2.35-yard	*yard*	$0.15½ @
40-inch 2.48-yard		.14⅜ @
40-inch 3.00-yard		.11⅞ @
37-inch 2.42-yard		.14⅝ @

Raincoat Fabrics

COTTON		
Bombazine 60 x 48	*yard*	.10¾ @
Bombazine 64 x 60		.11½ @
Plaids 60 x 48		.12½ @
Plaids 48 x 48		.11¼ @
Surface prints 60 x 48		.12¼ @
Surface prints 64 x 60		.13¾ @
Print cloth 38½-inch, 64 x 60		.08 @

Sheetings, 40-inch

48 x 48, 2.50-yard	*yard*	.13¼ @	.13½
48 x 48, 2.85-yard		.11¼ @	.11½
64 x 68, 3.15 yard		.12½ @	.12¾
56 x 60, 3.60-yard		.10½ @	.10¾
44 x 48, 3.75-yard		.08⅞ @	.09

Sheetings, 36-inch

48 x 48, 5.00-yard	*yard*	.07¼ @	.07⅜
40 x 44, 6.15-yard		.05¾ @	.06

Tire Fabrics

SQUARE WOVEN 17¼-ounce 17¼ ounce		
Egyptian, karded	*pound*	@
Peeler, karded	$0.46	@
BUILDER 23/11		
Peeler, karded	*pound* .46	@
BUILDER 10/5		
Peeler, karded	*pound* .42	@
CORD 23/5/3		
Egyptian, combed	*pound*	@
Egyptian, karded		@
Peeler, karded, 1 1/16-in.	.46	@
CORD 23/4/3		
Peeler, karded	*pound* .47	@
CORD 23/3/3		
Peeler, karded	*pound* .53	@
CORD 13/3/3		
Peeler, karded	*pound* .44	@
CORD 13/3/3		
Peeler, karded	*pound* .44	@
LENO BREAKER		
8-oz. Peeler, karded	*pound* .46	@
10-oz. Peeler, karded	.46	@
CHAFER		
9.5-oz. Peeler, karded	*pound* .54	@
12-oz. Peeler, karded	.50	@
14-oz. Peeler, karded	.48	@

RAINCOAT FABRICS. At present there are no outstanding features in raincoat fabrics. The trade is not buying goods until after the first of the year, due to inventory.

SHEETINGS. There has been a slight advance in certain sheetings. Moderate advances have been made on all the standard print cloths with prices now firm. As a rule, December is a quiet month but this year is an exception.

TIRE FABRICS. Apparently some tire fabric buyers think prices are down on rock bottom because during the last two weeks more liberal purchases were made and for a period further ahead than has been noted in a long time. A fair volume of business was placed for deliveries through to next June. This does not mean by any means that the tire fabric mills are sold up. Manufacturers are still competing actively for all orders available and prices continue low.

The Cotton Outlook

New Uses for Cotton

Representatives of the Bureau of Foreign and Domestic Commerce report that the survey on the current use of cotton fabrics is nearly completed. The results are being analyzed at present. Over 12,000 questionnaires have been sent out in order to gather this material. The Cotton-Textile Institute of New York has cooperated in this and turned over to the department material received from its members which deals with that subject.

The Bureau of Agricultural Economics reports that its studies dealing with use of cotton baling for raw cotton were progressing satisfactorily, and the report would be available within the next few months. It also has been making an inventory of the qualities of cotton now being used in this country. The survey on the use of cotton in clothing by the Bureau of Home Economics has been finished. Part of the results have been reported in recent trade journals and the final report is ready for the press. Plans for continued researches along these lines were described and arrangements made in order that there may be no duplication of effort in the work.

World's Cotton Consumption

Daily News Record states that the final world consumption of cotton by mills for the season ended July 31, 1927, is put at 25,881,000 bales, as compared with 24,681,000 bales the year previous, by the International Cotton Federation.

In connection with these figures and the table below the Federation points out that "due note should be taken of the fact that the figures for the United States cabled to us by the Bureau of the Census are in actual running bales and not in 500 pound-equivalent bales, as usually published in that country. Two round American bales are counted as one square American bale in all countries."

Figures (with 000 omitted) are:

	July 31, 1927	July 31, 1926	Increase or decrease
American	15,780	13,730	+ 2,050
East Indian	5,196	5,572	— 376
Egyptian	1,005	921	+ 84
Sundries	3,900	4,458	— 558
All kinds	25,881	24,681	+ 1,200

The total world's cotton mill stocks in bales on July 31, 1927, (000 omitted) were:

Europe	1,044 vs.	663, July 31, 1926
Asia	572 vs.	250, July 31, 1926
America	1,394 vs.	1,048, July 31, 1926

The total world's mill stocks of American cotton on July 31, 1927, were 3,010,000 bales, as against 1,969,000 bales, and 1,833,000 on the same date in the years 1926 and 1925 respectively, or larger by 1,051,000 and 1,187,000 bales.

The total world's mill stocks of all kinds of cotton on July 31, 1927, were 5,340,000 bales, against 4,498,000 bales on July 31, 1926, and 4,267,000 bales on July 31, 1925; i.e., larger by 842,000 and 1,073,000 bales, respectively.

Cotton Futures

The report of H. G. Hester, secretary of the New Orleans Cotton Exchange, discusses the absorption and handling by the trade of the record breaking cotton crop of 1926-1927, accomplished without outside aid. Concerning cotton futures the report says:

A most interesting and important event has been the recent decision of the Supreme Court of Georgia upholding the legality of cotton futures contracts made in or on the exchanges. That the system of price insurance in use the world over through the great exchanges on both sides of the Atlantic by means of the future contract deliveries is the most valuable and important feature of modern methods of crop handling, is beyond question.

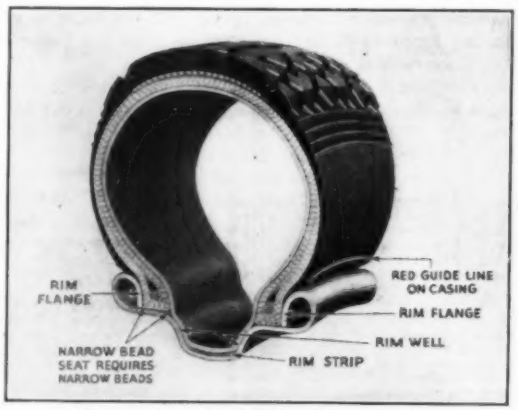
Great as was the pressure from the enormous quantities of spot cotton thrown on the market in the fall months, it was stubbornly met in the future rings of the exchanges from day to day, minimizing losses from declines which could not altogether be resisted in the face of the eagerness of producers to realize.

The business handled by New Orleans cotton merchants increased from 1,600,000 bales to 1,900,000 bales, according to the report, and press handlings of the committee of supervision and review showed an increase of 190,765, having increased to 1,324,306 bales.

NEW TIRE FOR NEW FORDS

The tire here shown is the size used on the new Ford—30 by 4.50/21. The performance of the Ford car has been vastly improved. Horsepower, acceleration and speed have been greatly increased, 4-wheel brakes provide more power to stop. Added strength and durability insure extra safety and dependability for the higher speed.

Improved car performance requires adequate tire equipment to meet the demands made upon it. The new motor, compared with the motor in the Model T, develops unusual torque in quick starting with high acceleration, and adds a concentrated strain and vibratory flexing on the carcass. The increased tractional effort causes severe abrasive action.



Section of 30 x 4.50/21 Tire and Rim

The new tire has greater traction, hence in stopping, the 4-wheel brakes and the heavier load on the tires, combine in transferring a high tension to the carcass. At high speeds, the rapidity at which the wheels revolve produces a more concentrated action, resulting in excessive heat in the carcass.

While Ford engineers were working on the car, Firestone engineers were developing the tire shown here—a tire designed throughout to meet the requirements of the car to which it is applied. This tire is noticeably larger and is sturdier and stronger in construction than the 29 by 4.40/21 used on the Model T.

Crude Rubber Arrivals at New York as Reported by Importers

Plantations

	Cases
NOVEMBER 15. By "City of Benares," Far East.	
General Rubber Co.	1,008
Littlejohn & Co., Inc.	608
The Meyer & Brown Corp.....pkgs.	480
NOVEMBER 15. By "Dacre Castle," Far East.	
General Rubber Co.	6,098
Littlejohn & Co., Inc.	3,951
The Meyer & Brown Corp.....pkgs.	3,073
The Meyer & Brown Corp.....pkgs.	*235
Charles T. Wilson Co., Inc.	3,058
NOVEMBER 17. By "Naples Maru," Far East.	
H. A. Astlett & Co.	273
Littlejohn & Co., Inc.	1,240
Rogers Brown & Crocker Bros., Inc.	286
NOVEMBER 17. By "Pres. Monroe," Far East.	
General Rubber Co.	2,804
Littlejohn & Co., Inc.	5,211
The Meyer & Brown Corp.....pkgs.	950
Raw Products Co.	100
Charles T. Wilson Co., Inc.	590
NOVEMBER 18. By "Mahseer," Far East.	
General Rubber Co.	590
Littlejohn & Co., Inc.	80
The Meyer & Brown Corp.....pkgs.	140
H. Muehlstein & Co., Inc.	280
Poel & Kelly, Inc.	112
NOVEMBER 19. By "Pres. Taft," Far East.	
Poel & Kelly, Inc.	†100
NOVEMBER 19. By "Ryndam," London.	
H. A. Astlett & Co.	40
General Rubber Co.	2,710
Littlejohn & Co., Inc.	308
The Meyer & Brown Corp.....pkgs.	261
Rogers Brown & Crocker Bros., Inc.	396
NOVEMBER 19. By "Venice Maru," Far East.	
Baird Rubber & Trading Co., Inc.	455
General Rubber Co.	4,490
Adolph Hirsch & Co., Inc.	50
Littlejohn & Co., Inc.	1,585
The Meyer & Brown Corp.....pkgs.	688
The Meyer & Brown Corp. .....pkgs.	*275
Poel & Kelly, Inc.	679
Poel & Kelly, Inc.	*220
Raw Products Co.	250
Charles T. Wilson Co., Inc.	1,874
NOVEMBER 21. By "Cleveland," Europe.	
Littlejohn & Co., Inc.	65
NOVEMBER 21. By "Glaucus," Far East.	
H. A. Astlett & Co.	1,372
Baird Rubber & Trading Co., Inc.	50
General Rubber Co.	2,789
Haldane & Co., Inc.	600
Littlejohn & Co., Inc.	1,389
The Meyer & Brown Corp.....pkgs.	660
H. Muehlstein & Co., Inc.	349
Poel & Kelly, Inc.	314
Rogers Brown & Crocker Bros., Inc.	1,412
Charles T. Wilson Co., Inc.	346
NOVEMBER 21. By "Laconia," Far East.	
Raw Products Co.	153
Charles T. Wilson Co., Inc.	18
NOVEMBER 21. By "London Exchange," London.	
H. A. Astlett & Co.	103
Baird Rubber & Trading Co., Inc.	414
General Rubber Co.	100
Littlejohn & Co., Inc.	500
The Meyer & Brown Corp.....pkgs.	766
NOVEMBER 21. By "Minnesota," London.	
Baird Rubber & Trading Co., Inc.	857
General Rubber Co.	2,911
Littlejohn & Co., Inc.	610
The Meyer & Brown Corp.....pkgs.	1,347
Poel & Kelly, Inc.	1,325
Raw Products Co.	348
Rogers Brown & Crocker Bros., Inc.	120
Charles T. Wilson Co., Inc.	390
NOVEMBER 22. By "Silver Guava," Far East.	
H. A. Astlett & Co.	700
Baird Rubber & Trading Co., Inc.	900
General Rubber Co.	5,260
Haldane & Co., Inc.	136
Littlejohn & Co., Inc.	2,592
The Meyer & Brown Corp.....pkgs.	1,338
H. Muehlstein & Co., Inc.	963
Poel & Kelly, Inc.	509
Rogers Brown & Crocker Bros.	580
Charles T. Wilson Co., Inc.	944
NOVEMBER 23. By "Clan MacBean," Far East.	
General Rubber Co.	53
Littlejohn & Co., Inc.	232
Rogers Brown & Crocker Bros., Inc.	596
NOVEMBER 23. By "Djember," Far East.	
H. A. Astlett & Co.	2,089
Baird Rubber & Trading Co., Inc.	76
General Rubber Co.	4,225
Haldane & Co., Inc.	136
Littlejohn & Co., Inc.	1,834
The Meyer & Brown Corp.....pkgs.	829
H. Muehlstein & Co., Inc.	381
Poel & Kelly, Inc.	617
Raw Products Co.	188
Charles T. Wilson Co., Inc.	356
NOVEMBER 23. By "Japanese Prince," Far East.	
H. A. Astlett & Co.	2,110
Baird Rubber & Trading Co., Inc.	400
General Rubber Co.	3,558
Haldane & Co., Inc.	118
Littlejohn & Co., Inc.	7,620
The Meyer & Brown Corp.....pkgs.	1,250
H. Muehlstein & Co., Inc.	785
Poel & Kelly, Inc.	515
Rogers Brown & Crocker Bros., Inc.	150
Charles T. Wilson Co., Inc.	1,177
NOVEMBER 27. By "Ambridge," Europe.	
Littlejohn & Co., Inc.	845
NOVEMBER 27. By "Norwegian," Europe.	
Littlejohn & Co., Inc.	113
NOVEMBER 27. By "Raby Castle," Far East.	
H. A. Astlett & Co.	2,082
Baird Rubber & Trading Co., Inc.	750
General Rubber Co.	6,781
Haldane & Co., Inc.	550
Littlejohn & Co., Inc.	4,982
The Meyer & Brown Corp. .....pkgs.	1,118
H. Muehlstein & Co., Inc.	652
Poel & Kelly, Inc.	390
Rogers Brown & Crocker Bros., Inc.	332
Charles T. Wilson Co., Inc.	235
NOVEMBER 28. By "American Shipper," London.	
H. A. Astlett & Co.	149
Baird Rubber & Trading Co., Inc.	162
General Rubber Co.	1,063
Littlejohn & Co., Inc.	632
The Meyer & Brown Corp.....pkgs.	249
NOVEMBER 28. By "Celtic," Liverpool.	
Baird Rubber & Trading Co., Inc.	120
NOVEMBER 28. By "Hamburg," Europe.	
Littlejohn & Co., Inc.	8
H. Muehlstein & Co., Inc.	120
NOVEMBER 28. By "Minnetonka," Europe.	
Littlejohn & Co., Inc.	100
The Meyer & Brown Corp.....pkgs.	140
Poel & Kelly, Inc.	1,843
Raw Products Co.	250
NOVEMBER 29. By "Pres. Wilson," Far East.	
H. A. Astlett & Co.	1,435
Baird Rubber & Trading Co., Inc.	400
General Rubber Co.	3,059
Haldane & Co., Inc.	420
Littlejohn & Co., Inc.	4,511
The Meyer & Brown Corp.....pkgs.	990
The Meyer & Brown Corp.....pkgs.	*250
H. Muehlstein & Co., Inc.	360
Poel & Kelly, Inc.	700
Raw Products Co.	200
Rogers Brown & Crocker Bros., Inc.	120
Charles T. Wilson Co., Inc.	860
NOVEMBER 30. By "Maidan," Far East.	
General Rubber Co.	1,438
H. Muehlstein & Co., Inc.	280
Rogers Brown & Crocker Bros., Inc.	*56
NOVEMBER 30. By "Volendam," Europe.	
Littlejohn & Co., Inc.	185
H. Muehlstein & Co., Inc.	99
Raw Products Co.	62
Rogers Brown & Crocker Bros., Inc.	166
DECEMBER 4. "Silverlarch," Far East.	
Littlejohn & Co., Inc.	†76
Poel & Kelly, Inc.	†400
DECEMBER 6. By "Ascania," Europe.	
General Rubber Co.	1,596
Littlejohn & Co., Inc.	501
Poel & Kelly, Inc.	1,792
DECEMBER 6. By "City of Salisbury," Far East.	
Baird Rubber & Trading Co., Inc.	330
Littlejohn & Co., Inc.	252
The Meyer & Brown Corp.....pkgs.	320
Raw Products Co.	660
Charles T. Wilson Co., Inc.	112
DECEMBER 6. By "Minnekahda," London.	
Baird Rubber & Trading Co., Inc.	265
General Rubber Co.	5,242
Littlejohn & Co., Inc.	1,356
The Meyer & Brown Corp.....pkgs.	285
Poel & Kelly, Inc.	141
Raw Products Co.	503
Charles T. Wilson Co., Inc.	387
DECEMBER 6. By "Silverbelle," Far East.	
Haldane & Co., Inc.	265
DECEMBER 7. By "American Banker," Far East.	
Poel & Kelly, Inc.	310
DECEMBER 7. By "Andania," Europe.	
General Rubber Co.	51
DECEMBER 7. By "West Sequanic," Far East.	
Poel & Kelly, Inc.	†124
DECEMBER 8. By "Elveric," Far East.	
H. A. Astlett & Co.	300
Littlejohn & Co., Inc.	140
DECEMBER 10. By "Westerdyk," Far East.	
General Rubber Co.	3,688
H. Muehlstein & Co., Inc.	276
Poel & Kelly, Inc.	197
Raw Products Co.	966
DECEMBER 11. By "Binnendijk," Hamburg.	
Hood Rubber Co.	*60
DECEMBER 12. By "Median," London.	
Hood Rubber Co.	*62
DECEMBER 12. By "President Jefferson," Far East.	
Baird Rubber & Trading Co., Inc.	‡50
DECEMBER 12. By "Somland," Far East.	
H. Muehlstein & Co., Inc.	307
DECEMBER 13. By "Cedric," Liverpool.	
Baird Rubber & Trading Co., Inc.	45
DECEMBER 13. By "London Mariner," London.	
Baird Rubber & Trading Co., Inc.	284
General Rubber Co.	1,583
Littlejohn & Co., Inc.	1,154
The Meyer & Brown Corp.....pkgs.	421
DECEMBER 13. By "Minnewaska," London.	
H. A. Astlett & Co.	104
Baird Rubber & Trading Co., Inc.	247
General Rubber Co.	2,850
The Meyer & Brown Corp.....pkgs.	502
H. Muehlstein & Co., Inc.	437
Poel & Kelly, Inc.	311
Charles T. Wilson Co., Inc.	195
DECEMBER 14. By "Alaunia," Europe.	
General Rubber Co.	2,357
DECEMBER 14. By "Chinese Prince," Far East.	
Hood Rubber Co.	*153
DECEMBER 14. By "Olivebank," Far East.	
H. A. Astlett & Co.	836
Baird Rubber & Trading Co., Inc.	100
General Rubber Co.	1,901
Haldane & Co., Inc.	100
Hood Rubber Co.	*303
Littlejohn & Co., Inc.	3,497
The Meyer & Brown Corp.....pkgs.	1,502
H. Muehlstein & Co., Inc.	428
Poel & Kelly, Inc.	720
Rogers Brown & Crocker Bros., Inc.	1,362
Charles T. Wilson Co., Inc.	477
DECEMBER 14. By "Pres. Van Buren," Far East.	
H. A. Astlett & Co.	1,849
Baird Rubber & Trading Co., Inc.	300
General Rubber Co.	2,302
Haldane & Co., Inc.	400
Littlejohn & Co., Inc.	5,416
The Meyer & Brown Corp.....pkgs.	2,784
H. Muehlstein & Co., Inc.	620
Poel & Kelly, Inc.	75
Raw Products Co.	200
Rogers Brown & Crocker Bros., Inc.	1,440
DECEMBER 14. By "Reliance," Far East.	
Raw Products Co.	120
DECEMBER 15. By "American Merchant," Europe.	
Littlejohn & Co., Inc.	274
H. Muehlstein & Co., Inc.	126
DECEMBER 15. By "Anniston City," Far East.	
H. A. Astlett & Co.	856
Baird Rubber & Trading Co., Inc.	150
Hood Rubber Co.	229
Littlejohn & Co., Inc.	2,672
H. Muehlstein & Co., Inc.	248
Rogers Brown & Crocker Bros., Inc.	167

* Arrived at Boston.
† Arrived at Los Angeles.
‡ Arrived at Portland, Oregon.

DECEMBER 15. By "Bolivian," London. CASES
Hood Rubber Co. *528
DECEMBER 15. By "City of Lincoln," Far East.
H. A. Astlett & Co. 3,035
Baird Rubber & Trading Co., Inc. 900
Haldane & Co., Inc. 1,400
Hood Rubber Co. 235
Littlejohn & Co., Inc. 4,113
H. Muehlstein & Co., Inc. 231
Rogers Brown & Crocker Bros., Inc. 117
Charles T. Wilson Co., Inc. 130
DECEMBER 15. By "Kasenga," Far East.
H. A. Astlett & Co. 554
Baird Rubber & Trading Co., Inc. 112
Hood Rubber Co. *232
Littlejohn & Co., Inc. 1,584
H. Muehlstein & Co., Inc. 132
Charles T. Wilson Co., Inc. 364

Balata

NOVEMBER 28. By "Haiti," Far East.
Middleton & Co., Ltd. .....bales 135
DECEMBER 1. By "Ardenhall," Far East.
Paul Bertuch & Co., Inc. 22

Africans

NOVEMBER 22. By "Arabic," Europe. CASES
The Meyer & Brown Corp. .....pkgs. 377
NOVEMBER 25. By "Chicago," Europe.
Littlejohn & Co., Inc. 1,076
NOVEMBER 25. By "Denis," Brazil.
General Rubber Co. .....(knapsacks) 3
NOVEMBER 30. By "Pennland," Europe.
Baird Rubber & Trading Co., Inc. 510
Littlejohn & Co., Inc. 441
DECEMBER 12. By "Belgenland," Europe.
The Meyer & Brown Corp. .....pkgs. 221
DECEMBER 13. By "Roussillion," Europe.
The Meyer & Brown Corp. .....pkgs. 900
DECEMBER 14. By "Scythia," Europe.
Littlejohn & Co., Inc. 84
DECEMBER 15. By "Nordvard," Europe.
Littlejohn & Co., Inc. 308

Guayule

NOVEMBER 25. By "Ortega," Mexico. CASES
Continental Rubber Co. of New York.... 2,180
NOVEMBER 28. By "Monterey," Mexico.
Baird Rubber & Trading Co., Inc. 560
Continental Rubber Co. of New York.... 1,620
DECEMBER 6. By "Tela," Mexico.
Continental Rubber Co. of New York..... 1,620
DECEMBER 12. By "Mexico," Mexico.
Baird Rubber & Trading Co., Inc. 1,063
Continental Rubber Co. of New York.... 1,620

Rubber Latex

Gallons
NOVEMBER 16. By "Dacre Castle," Far East.
General Rubber Co. 93,767
NOVEMBER 22. By "London Exchange," Far East.
General Rubber Co. 86,091
NOVEMBER 28, By "Raby Castle," Far East.
General Rubber Co. 30,159

Paras and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Miscel. Cases
NOVEMBER 25. By "Denis," South America.					
H. A. Astlett & Co.	370	13	397	26	...
Paul Bertuch & Co., Inc.	125	...	55	161	...
General Rubber Co.	487	37	158	34	...
Littlejohn & Co., Inc.	621	...	323	211	...
DECEMBER 1. By "Ardenhall," South America.					
H. A. Astlett & Co.	216	2	369	41	...
Paul Bertuch & Co., Inc.	128	...	...	...	...
Paul Bertuch & Co., Inc.	***72**	...	...	...	...
Littlejohn & Co., Inc.	276	...	...	...	...
DECEMBER 9. By "Polycarp," South America.					
H. A. Astlett & Co.	664	...	76	90	...
Paul Bertuch & Co., Inc.	227	33	75	33	...
General Rubber Co.	650	67	176	51	...
Littlejohn & Co., Inc.	542	7	11	153	...
The Meyer & Brown Corp.	156	...	...	...	...

*Washed and dried.

United States Crude and Waste Rubber Imports for 1927 by Months

	Plantations	Paras	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Total 1927	Total 1926	Balata	Miscellaneous	Waste
January .....tons	42,646	2,378	269	299	144	...	45,736	38,697	106	1,508	447
February	25,326	1,668	213	203	190	...	27,600	34,067	119	935	953
March	33,114	1,176	206	253	329	...	35,078	42,677	82	674	531
April	45,843	1,822	351	229	418	10	48,673	32,678	109	1,317	631
May	33,735	1,872	197	399	364	2	36,569	30,411	68	1,075	1,056
June	31,444	1,057	123	251	317	2	33,194	30,107	85	1,092	230
July	37,060	871	46	388	295	7	38,667	37,087	66	1,030	62
August	31,195	986	29	504	345	9	33,068	25,982	25	882	475
September	31,064	1,117	43	210	364	...	32,798	38,132	40	1,444	220
October	29,758	1,104	22	158	267	1	31,310	28,114	42	775	146
November	38,301	1,368	244	225	423	...	40,561	41,107	98	1,187	396
Total, 11 months, 1927.....tons	379,486	15,419	1,743	3,119	3,456	31	403,254	.....	840	11,919	5,147
Total, 11 months, 1926.....tons	356,059	11,689	3,481	4,488	3,316	26	.....	379,059	470	10,610	5,320

Compiled from statistics supplied by the Rubber Association of America, Inc.

TIRE INVENTORY — PRODUCTION — DOMESTIC SHIPMENTS

In inventory, production and shipments of all types of pneumatic casings and inner tubes, inventory for inner tubes only showed an increase in amount for October over September totals. The October figures fall below the figures for the same period in 1926 with the exception of shipments of pneumatic casings, 3,599,455 which is larger than 3,408,118 which was the 1926 figure. Inventory and production of pneumatic casings for October are 7,248,724 and 3,582,879, while October, 1926, the amounts were 7,437,559 and 3,827,467 respectively. Inventory, production and shipments of inner tubes for October, 1926, were 11,947,007; 4,655,969; and 4,105,847 against the October, 1927, figures of 10,154,694; 3,798,996; and 3,768,568 respectively. Solid and cushion tires for October also show a decrease in inventory, production and shipments from the September figures and leads the 1926 figures only in inventory.

A falling off is also noted in the consumption of cotton fabric and crude rubber in October which amounted to 13,549,239 pounds and 37,129,544 pounds respectively. The September total for cotton fabric was 13,997,978 pounds and for crude rubber, 37,341,213 pounds.

	October, 1927 Inventory*	Production	Shipments
Pneumatic casings—all types	7,248,724	3,582,879	3,599,455
Inner tubes—all types	10,154,694	3,798,996	3,768,568
Balloon casings	3,764,591	1,683,003	1,809,385
Balloon inner tubes	4,965,306	1,415,650	1,607,119
High pressure cord casings	3,290,601	1,830,171	1,710,288
High pressure inner tubes	5,189,388	2,383,346	2,161,449
Solid and cushion tires	159,946	33,577	42,968

COTTON AND CRUDE RUBBER CONSUMPTION, OCTOBER, 1927.

	Pounds
Cotton fabric	13,549,239
Crude rubber	37,129,544

*As of October 31, 1927.
Rubber Association figures representing 75 per cent of the industry.